55-4920-215-15

# TM 55-4920-215-15

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

## OPERATOR, ORGANIZATIONAL

## FIELD, AND DEPOT MAINTENANCE MANUAL

# SHOP SET,
# AIRCRAFT MAINTENANCE,
# SEMITRAILER MOUNTED,
# SET C-6, MACHINE SHOP

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*HEADQUARTERS, DEPARTMENT OF THE ARMY*

*OCTOBER 1961*

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TECHNICAL MANUAL
No. 55–4920–215–15

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., *18 October 1961*

# Operator, Organizaional, Field, and Depot Maintenance Manual
# SHOP SET, AIRCRAFT MAINTENANCE, SEMITRAILER MOUNTED, SET C–6, MACHINE SHOP


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# CHAPTER 1

# INTRODUCTION

## Section I. GENERAL

### 1. Scope

This manual is published for the information and guidance of operating and maintenance personnel to whom the end item or equipment is assigned. It contains information on the operation, lubrication, preventive maintenance services, and maintenance of the equipment, its accessories, and auxiliaries; also packing, preservation, storing, and shipping procedures.

### 2. References

*a. Current Technical References.* Appendix I lists technical publications applicable to the equipment.

*b. Maintenance Allocation.*

(1) *Organizational maintenance allocation.* In general, the prescribed organizational maintenance responsibilities will apply in accordance with the extent of disassembly prescribed in the maintenance allocation chart (app. II). In all cases where the nature of the repair, modification, or adjustment is beyond the scope or facilities of the using organization, the applicable supporting maintenance unit should be informed so that trained personnel with suitable tools and equipment may be provided or other instructions issued.

(2) *Field and depot maintenance allocation.* The publication herein of instructions for complete disassembly and repair is not to be construed as authority for the performance by field maintenance units of those functions which are the responsibilities of depots. The prescribed maintenance responsibilities will apply as reflected in the allocation of maintenance parts in the applicable manual. Provisioning of parts listed in chapters 8 and 9 of this manual will be made to field maintenance only when the emergency nature of the maintenance to be performed has been certified by a responsible officer of the requisitioning organization.

### 3. Forms, Records, and Reports

*a. General.* Responsibility for the proper execution of forms, records, and reports rests upon the commanding officers of all units maintaining this equipment. However, the value of accurate records must be fully appreciated by all persons responsible for their compilation, maintenance, and use. Records, reports, and authorized forms are normally utilized to indicate the type, quantity, and condition of material to be inspected, repaired, or used in repair. Properly executed forms convey authorization and serve as records for repair or replacement of material in the hands of troops and for delivery of material requiring further repair to shop, depots, etc. The forms, records, and reports establish the work required, the progress of the work within the shops, and the status of the material upon completion of its repair.

*b. Authorized Forms.* For a complete listing of forms, refer to current DA PAM 310-2.

*c. Field Report of Accidents.* The reports necessary to comply with the requirements of the Army safety program are prescribed in

detail in the AR 385- series. These reports are required whenever accidents involving injury to personnel or damage to material occur.

*d. Report of Unsatisfactory or Damaged Equipment or Materials.* Any suggestions for improvement in design and maintenance of equipment and repair parts, safety and efficiency of operation, or pertaining to the application of prescribed lubricants and/or preserving materials, or technical inaccuracies noted in Department of the Army publications, will be reported as prescribed in AR 700–38, using DA Form 468, Unsatisfactory Equipment Report, or DD Form 6, as prescribed in Ar 700–58. Such suggestions are encouraged in order that other organizations may benefit. Do not report all failures that occur. Report only repeated failures or unsatisfactory design or material. However, reports will always be made when exceptionally costly equipment is involved. Refer also the AR 700–38, and the printed instructions on DA Form 468.

## Section II. DESCRIPTION AND DATA

### 4. Description

a. *General.* Shop Set, Aircraft Maintenance, Semitrailer Mounted, C-6, Machine Shop, consists of a semitrailer mounted van and necessary tools and equipment for an Army aviation field maintenance shop, operating in the field, performing the functions of a machine shop facility. The shop set contains three systems; electrical, pneumatic, and utility.

(1) *Electrical system.* A 10 kw generator is mounted on the forward platform of the shop and connected to the shop electrical system by a power cable inserted in the external power receptacle. The generator supplied the shop with 110–220 volt, 60 cycle, single phase, ac current, and 208 volt, 60 cycle, three phase, ac current. The external power receptacle feeds directly to the safety disconnect switch which is provided to enable the operator to disconnect the power source from the interior of the shop. An electric panel (fig. 4) is mounted directly above the safety disconnect switch. The control panel contains 14 thermal-magnetic circuit breakers which serve as distribution centers for the current supplied to the equipment of the shop (fig. 8). Overhead ceiling receptacles are provided to furnish current for small electrically operated tools. Heavier equipment such as the arbor press, drilling machine, bench grinder, lights, and heaters, are connected directly to the electric control panel. A pothead assembly is located at the front of the forward storage compartment to serve as an auxiliary electrical outlet for supplying current to the other shops(s). This connection can be used only when the generator is in operation. Auxiliary electrical current is supplied to the shop through the external power receptacle when the shop generator is not in operation.

(2) *Pneumatic system.* Power for the pneumatic system is supplied from an external source. An oil and water separator (fig. 5), is mounted at the front, upper left, interior corner of the shop. A quick disconnect fitting is provided for attaching an air hose from the external power source. The separator incorporates a drain cock for draining off accumulated oil or water; a source pressure gage; 2 regulators for regulating the operating pressure; 2 operating pressure gages; check units, and valves to control or disconnect the air pressure.

(3) *Utility system.* The utility system consists of 1 each, 1 3/4 x 30 x 84 inch, maple bench top, 1 each, 33 x 28 x 42 inch, 4-shelf storage cabinet; and 1 each, 33 x 28 x 42 inch, 12-drawer storage babinet. The maple bench top is used as a working surface and for mounting equipment.

The cabinets are used for storing hand tools and small items of equipment (pars. 129–131).

*b. Identification.* Identification and instruction markings are listed in figures 1, 2, and 3.

*c. List of Components.* A list of the components is contained in SM 55–4–4920–S40.

*d. Deviation in Models.* This manual applies only to Shop Set, Aircraft Maintenance, Semitrailer Mounted, C–6, Machine Shop.

## 5. Tabulated Data

*a. Organizational Maintenance Data.*

| | |
|---|---|
| Model | C–6 |
| Overall Dimensions: | |
| Overall length | 319 in. |
| Overall width | 96 in. |
| Overall height (loaded). | 132 in. |
| Height of chassis (loaded). | 50–1/2 in. |
| Overall width with-sides folded out. | 166–1/2 in. |
| Volume | 2,288 cubic ft. |
| Total weight | 18,700 lb. |

*b. Field and Depot Maintenance Data*

(1) *Electrical System*

| | |
|---|---|
| Power source | Generator, gasoline engine driven. |
| Generator make and model | Military Specification MIL–G–12373, Type II, Class A. |

*Figure 1. Shop Set C–6, machine shop.*

*Figure 2. Identification plates, shop set, C–6.*

*Figure 3. Instruction plate, shop set, C–6.*

Generator mounting — Skid type.

Generator rating — Single and three-phase, 10 kw, 208 v, ac, line-to-line, 120 v, line-to-neutral or line-to-line, three-phase, 60 cycle operation; or 10 kw, 120–240 v, line-to-line, single phase, 60 cycle operation.

Electrical connections, shop — Power cable, male to female joy plug for shop or pot head assembly for auxiliary operation (fig. 8).

Safety devices — Safety disconnect switch.

Controls — Thermal-magnetic circuit breaker panel; 14 breakers (fig. 4).

Electrical connections, equipment — Receptacles and circuit breakers (fig. 4).

### (2) *Pneumatic system*

Power source — External; compressor or storage tank.

Pneumatic power requirements — 5 cfm at 175 psi working pressure

Pneumatic connections, shop — Quick disconnect fittings (fig. 11).

Pneumatic connections, equipment — Quick disconnect fittings; air hose and adapters.

Safety devices — Safety relief valve.

Controls — Shutoff valve; oil and water separator, gages, regulators, valves, and check units (fig. 5).

Pneumatic connections, equipment — Quick disconnect fittings (fig. 11).

### (3) *Utility System*

Type equipment — Bench tops maple, size A; storage cabinet, Type I and III.

Equipment function. ---------- Bench top work area and mounting bases; Storage cabinets — storage of handtools and accessories (ch. 8, sec. I).

Equipment mounting ---------- Bench top—bolt down; storage cabinets—bolts down.

# CHAPTER 2

# OPERATING INSTRUCTIONS (OPERATOR)

## Section I. SERVICE UPON RECEIPT OF EQUIPMENT

### 6. General

When a new or used shop set is received by the operator, it is the responsibility of the operator to determaine whether the material been properly prepared for service by the supplying organization and to be sure it is in condition to perform its functions. For this purpose, inspect all assemblies and parts to be sure they are properly assembled, secured, cleaning, adjusted, and lubricated. Refer to chapter 8 for assembly, location, and mounting details of equipment. Make a record of any malfunctions. Notify the responsible maintenance echelon of deficiencies for correction as quickly as possible.

### 7. Before Operation Service

*a. Lubrication.* Lubricate equipment in accordance with paragraphs 29 and 30.

*b. Fueling Instructions.* Service equipment with fuel specified in operational and service manuals of the specific item. The instructions contained in operational and service manuals of the equipment should be used in connection with this manual.

***Caution:*** **Serious damage to equipment can result when the wrong type fuel is used in servicing equipment.**

## Section II. CONTROLS AND INSTRUMENTS

### 8. General

This section describes locates, illustrates, and furnishes the operator information pertaining to the various controls or instruments provided for the proper operation of the equipment. It is essential that the operator know how to perform every operation of which the equipment is capable.

### 9. Electric Controls and Instruments

An electric control panel is located at the right rear corner of the interior of the shop. This panel is equipped with circuit breakers and an identification list (fig. 4); additional circuits may be installed, when necessary in the panel. A safety switch is mounted beneath the panel on the incoming line. A layout (wiring diagram) of the control panel is shown in figure 8. An outside power receptacle is mounted on the right rear of the shop exterior.

***Caution:*** **Do not modify power receptacle or electrical cable.**

### 10. Pneumatic Controls and Instruments

Pneumatic controls and instruments are mounted as a part of the air lines installation as illustrated in figure 5. These controls and instruments include valves, regulators, separators, gages, and check units. The air line is installed starting at the left front of the bottom of the shop, passing through the floor to the regulators and separators. The air line is divided into two sections after passing the separators with one section continuing down each side of the shop, along the ceiling. Two check unit couplings are mounted on each side and another one on the outside front at the bottom of the incoming line.

*Figure 4. Electrical control panel and identification list.*

*Figure 5. Pneumatic controls and instruments.*

## Section III. OPERATION UNDER USUAL CONDITIONS

### 11. General

Instructions in this section are published for the information and guidance of personnel responsible for the operation of this equipment. It is essential that the operator know how to perform every operation of which the equipment is capable.

### 12. Preparation for Starting

*a.* Perform the "before operation" daily services (par. 31–34).

*b.* Assure that all equipment control switches are in the OFF position.

*c.* Start power supply equipment.

*Note:* When external power supply is used, check connections before starting equipment.

***Warning:*** **Use compressed air only for the purpose for which it is intended. Serious injuries to personnel can result from misuse.**

*d.* The equipment comprising Shop Set, Aircraft Maintenance, Semitrailer Mounted, C-6, Machine Shop (par. 4), is now ready for operation.

*e.* It is essential that the operator be completely familiar with the manuals for the equipment.

## 13. Shutdown of Shop Set

*a.* Shutdown instructions for the units comprising Shop Set, Aircraft Maintenance, Semitrailer Mounted, C–6, Machine Shop, are contained in the TM issued for the individual items (app. I). It is essential that the operator understand these instructions.

*b.* Perform "after operation" daily services (ch. 3, Sec. III).

## 14. Operating Details

*a. General.* These instructions provide the operator with necessary details for operation of the equipment in the shop set.

*b. Electrical System.*

(1) Start generator in accordance with the TM for the generator (app. I).

(2) Check generator instruments to assure that proper current is being supplied; adjust controls as necessary.

(3) Ascertain that circuit breakers in electrical panel are in the ON position for circuits to be used.

(4) Check for loose connections, blown fuses, tripped circuit breakers, and frayed wire covers.

(5) Plug cords of equipment to be operated into receptacles provided.

*Note.* When external power source is utilized, omit (1) and (2) above.

*c. Pneumatic System.*

(1) Allow sufficient time for buildup of source pressure and drain the oil and water separator (fig. 5).

*Note.* The correct source pressure is 75 to 150 psi.

(2) Close drain when water or oil cease to drain from separator.

(3) Adjust controls (fig. 5), to obtain an operating pressure of 75 psi.

(4) Check connections for leaks, security of fittings, and condition.

(5) Insert adapters, attached to pneumatic equipment hose, into receptacle provided.

## 15. Movement of Equipment

*a.* Perform "at halt" and "after operation" daily service (table I).

*b.* Store all tools and equipment.

*c.* Install security locking bars on cabinets with drawers (fig. 6).

*d.* Secure tools or equipment, too large for bin storage, in spaces provided (fig. 7).

*e.* Store cable or hose in locations provided.

*Figure 6. Security locking bars, open bin security fastenings, typical installation.*

*Figure 7. Jack stowage box.*

## Section IV. OPERATION OF ONE UNIT IN CONJUNCTION WITH ANOTHER ACCESSORY OR AUXILIARY

### 16. Maintenance and Operating Instructions

Maintenance and operating instructions for the auxiliary equipment to be used in conjunction with this shop set are listed in the technical manuals of the auxiliary.

### 17. Auxiliary Connections

Connections are provided for auxiliary pneumatic and electrical hookups. The location, purpose, and description of these auxiliary outlets are described in paragraphs 75 through 77.

## Section V. OPERATION UNDER UNUSUAL CONDITIONS

### 18. General Conditions

*a.* In addition to the operating procedures described for usual conditions, special instructions of a technical nature for operating and servicing this equipment under unusual conditions are contained or referred to herein. In addition to the normal preventive maintenance service, special care in cleaning and lubrication must be observed where extremes of temperature, humidity, and terrain are present or anticipated. Proper cleaning, lubrication, and storage and handling of fuels and lubricants not only insure proper operation and functioning but also guard against excessive wear of the working parts and deterioration of materials.

***Caution:*** **It is imperative that the approved practices and precautions be followed. A detailed study of the specific technical manuals is essential for use of this equipment under unusual conditions.**

*b.* When recurrent failure of equipment results from subjection to extreme conditions, report the condition on DA Form 468.

### 19. Extreme Cold Weather Conditions

*a. General.*

(1) Extensive preparation of equipment scheduled for operation in extreme cold weather is necessary. Generally, extreme cold will cause lubricants to congeal, freeze batteries or prevent them from furnishing sufficient current for cold weather starting, crack insulation and cause electrical short circuits, prevent fuel from vaporizing and properly combining with air to form a combustible mixture for starting, and will cause the various construction materials to become hard, brittle, and easily damaged or broken.

(2) The cooling systems must be prepared and protected for temperature below +32°F., in accordance with instructions in specific manuals on draining and cleaning the systems and the application and checking of antifreeze compounds to suit the anticipated conditions.

***Caution:*** **It is imperative that the approved practices and precautions be followed. Refer to specific manuals applicable to the equipment. This must be considered essential.**

*b. Fuels, Lubricants, and Antifreeze Compounds (Storage, Handling, and Use).*

(1) The operation of equipment at arctic temperatures will depend to a great extent upon the condition of the fuels, lubricants, and antifreeze compounds used in the equipment. Immediate effects of careless storage and handling or improper use of these materials are not always apparent, but any deviation from proper procedures may cause trouble at the least expected time.

(2) In arctic operations, contamination with moisture is a source of many difficulties. Moisture can be the result of snow getting into the product, a condensation due to "breathing" of a partially filled container, or moisture condensed from warm air in a partially filled container when a product is brought outdoors from room temperature. Other impurities will also contaminate fuels and lubricants so their usefulness is impaired.

## 20. Extreme Cold Weather Operation

*a. General.*

(1) The operator must always be on the alert for indications of the effect of cold weather on the equipment.

(2) The operator must exercise caution when placing the equipment in operation after a shutdowm. Thickened lubricants may cause failure of parts. Warm up motorized equipment thoroughly before operating, check source voltage of electrical equipment to ascertain that sufficient power is available to prevent motor burnouts.

(3) Constantly note instrument readings. If instrument readings consistently deviate from normal, stop the equipment and investigate cause.

*b. At Stop.*

(1) When halted for short shutdown period, the equipment should be sheltered from the wind.

(2) When preparing equipment for shutdown periods, place control levers in the neutral position to prevent them from freezing in an engaged position. Freezing may occur when water is present due to condensation.

(3) Clean all equipment of ice and condensation as soon as possible after operation. If the canvas covers are not installed, be sure to protect all equipment against entrance of loose, drifting snow during the halt.

(4) If heater is not in operation the storage batteries should be removed and stored in a warm place.

(5) Refuel equipment immediately in order to reduce condensation in the fuel tanks. Prior to refueling, open fuel tank drain cock and drain off any accumulated water.

(6) Immediately after shutdown, start the heater and check to be sure it operates effectively. The heater should eliminate the necessity of removing the signed to operate unattended overnight.

(7) Open drain cocks to remove liquid from water separators and cooling systems and inspect drain cock for obstructions. Remove any foreign material or obstructions from drain cocks. Leave drain cocks in full open position while equipment is inoperative.

## 21. Operation in Extreme Hot Weather Conditions

*a. General.* Operation of the equipment in extreme hot weather conditions requires efficient cooling and proper lubrication. Halt the equipment for a cooling off period whenever necessary and conditions permit. Frequently inspect and service cooling units, oil filters, and air cleaners. Check ventilators periodically for cracks and obstructions. Check lubricants for viscosity and lubricating ability.

*b. At Stop.*

(1) Do not leave equipment in the sun for long periods, place equipment under cover to protect it from the sun, sand, and dust when possible.

(2) Cover inactive equipment with tarpaulins if no other suitable shelter is available.

(3) Equipment inactive for long periods in hot humid weather is subject to rapid rusting and accumulation of fungi growth. Make frequent inspections and clean and lubricate to prevent excessive deterioration. Protect cooling systems with rust inhibiter compound. Remove the batteries and store in a cool place.

## 22. Operation in Extreme Wet Climate

Mud, water, and high humidity are enemies of the equipment in this shop set. Particular attention should be paid to formation of rust, mud scale, dirt buildup, and mildew. All equipment exposed to these conditions should be cleaned and oiled frequently in order to preserve the operating efficiency.

## 23. Operation in Snow and Ice

The precautions listed in paragraphs 20 and 21, apply to operating the equipment in snow and ice.

## 24. Operation in Salt Water Areas

Corrosion is the major problem presented by operation of the equipment in salt water areas. Particular attention should be given to application of corrosion preventive compounds, cleaning of equipment, storage, and touchup of painted areas. Remove all traces of salt water and salt water residue from the exterior of the shop by thoroughly washing the equipment with fresh water. After drying, apply a solution of 75 percent lubricating oil and 25 percent corrosion preventive compound, Military Specification MIL–C–6529, Type I, to all surfaces not protected by paint.

***Caution:*** **Do not allow this mixture to come in contact with rubber materials or parts which are exposed to direct flame.**

Operating equipment including hand tools, may be protected by an application to exterior surfaces of corrosion preventive compound, Military Specification MIL–C–16173, grade I.

## 25. Operation in Extremely Dusty Conditions

Operation of the equipment under this condition necessitates the frequent inspection of unprotected surfaces. All lubricated surfaces should be cleaned periodically and the contaminated lubricant replaced with uncontaminated lubricant.

## 26. Operation at High Altitudes

Overheating of equipment and deviation in instrument readings constitute the major problems of operating equipment at high altitudes. Intake ducts, filters, and water supply must be checked at frequent intervals as a preventive measure for overheating.

***Caution:*** **Instruments not compensated for high altitude operation should be adjusted in accordance with instructions contained in the applicable TM by second echelon maintenance personnel.**

# CHAPTER 3

# MAINTENANCE INSTRUCTIONS (OPERATOR)

## Section I. SPECIAL ORGANIZATIONAL TOOLS AND EQUIPMENT

### 27. Special Tools and Equipment Which Are Supplied With or Issued for Use With the Equipment

No special tools or equipment are required for operator maintenance of this shop set. Special tools and equipment required for operator maintenance of individual items of equipment are listed in the TM for the item (app. I).

### 28. On Vehicle Material (OVM)

List of tools and parts attached to the equipment are listed in the TM for the item (app. I).

## Section II. LUBRICATION

### 29. General

A lubrication order is issued for each item of equipment and is to be carried with it at all times. Lubrication orders prescribe approved lubrication procedures. The instructions contained therein are mandatory.

### 30. Detailed Lubrication Instructions

*a. Care of Lubricants.* When storing and handling lubricants, make certain the container is clean and securely covered to prevent dirt, dust, or other foreign matter from entering. Be sure that the lubricant is clean before using. Keep lubrication equipment in a place where it will be safe from damage and free from dirt. Paragraphs 18 through 26 contain lubrication instructions for the protection of equipment under unusual conditions.

*b. Cleaning.* Clean all surfaces surrounding the points to be lubricated before applying the lubricant. Use an approved cleaning solvent to wash the surfaces. Wipe off all excess lubricant after lubricating.

*c. Points of Application.* The points of application are illustrated in the applicable lubrication order. Follow the detailed lubrication instructions illustrated beneath each lubrication point, indicating procedures to be followed at each point. Apply the lubricant indicated on the lubrication order.

## Section III. PREVENTIVE MAINTENANCE SERVICES

### 31. General

*a. Responsibility and Intervals.* The primary function of preventive maintenance is to prevent breakdowns and therefore the need for repair. Preventive maintenance services which are the responsibility of the operator will be performed before operation, during operation, at halt, and after operation (table I).

*b. Before Operation Service.* This is a brief service to ascertain that the equipment is ready for operation; it is essentially a check to determine if conditions affecting the equipment's readiness have changed since the last "after operation" service.

*c. During Operation Service.* This service consists of the detection of unsatisfactory performance while the equipment is in operation.

The operator should be alert for any unusual noises, vibrations, or irregularities of performance.

*d. At Halt Service.* This service will consist of brief visual inspection of equipment for condition, security, and wear; the removal of foreign material from equipment; and the cleaning of equipment that might be damaged by allowing existing conditions to continue.

*e. After Operation Service.* This service consists of investigating any deficiencies noted during operation and performing certain phases of the "before operation" service as noted in table I. It is the basic daily service for equipment and consists of correcting, so far as possible, any operating deficiencies; in this manner, the equipment is prepared to operate upon short notice.

*f. Inspection.* The general inspection of each item is generally a check to see whether the item is in good condition, correctly assembled, secure, and not excessively worn.

*g. Definition of Terms.* Terms used to describe the inspection requirements of this section are defined as follows:

(1) *Good condition.* This is usually an external inspection to determine whether the unit is damaged beyond serviceable limits. The term "good condition" is explained further by the following: Not bent or twisted, not chafed or burned, not broken or cracked, not bare or frayed, not dented or collapsed, not torn or cut, not deteriorated.

(2) *Correctly assembled.* This term refers to the inspection of a unit to see that it is in the normal assembled position. It is usually an external visual inspection.

(3) *Secure.* This is usually an external visual inspection or a check by hand or wrench for looseness. Such an examination must include any brackets, lock washers, lock nuts, locking wires, or cotter pins used.

(4) *Excessively worn.* This inspection is to determine whether equipment is worn beyond serviceable limits or to a point likely to result in failure if the unit is not replaced before the next scheduled inspection.

## 32. Specific Procedures for Operator

Table I lists the specific procedures to be performed on the shop set by the operator in daily service. An X in a column indicates that the procedure opposite it should be performed during that part of the daily service it appears in. Refer to appendix I for listing of technical publications containing daily operator services for individual items of equipment.

## 33. Cleaning

Any special cleaning instructions required for specific mechanisms or parts are contained in the TM for the equipment (app. I). General cleaning instructions are as follows:

*a.* Use drycleaning solvent to clean or wash grease or oil from all metal parts.

*b.* A solution of one part grease-cleaning compound to four parts of drycleaning solvent may be used for dissolving grease and oil from the shop and equipment other than optical instruments. After cleaning, use cold water on exterior surfaces of the shop, to rinse off any solution which remains. Operating equipment and hand tools, exclusive of optical instruments, may be wiped with a light lubricating oil.

*c.* When authorized to install new parts, remove any preservative materials, such as rust-preventive compound, protective grease, etc.; prepare parts as required (oil seals, etc.); and for those parts requiring lubrication, apply the lubricant prescribed in the lubrication order.

*d.* Nameplates, caution plates, and instruction plates made of steel rust very rapidly. When they are found to be in a rusted condition, they should be thoroughly cleaned and heavily coated with an application of clear lacquer.

## 34. General Precautions in Cleaning

*a.* Drycleaning solvent is flammable and should not be used near an open flame. Fire extinguishers should be provided when these

materials are used. Use only in well-ventilated places.

*b.* Drycleaning solvent evaporates quickly and has a drying effect on the skin. If used without gloves it may cause cracks in the skin and, in the case of some individuals, a mild irritation or inflammation.

*c.* Avoid getting petroleum products, such as drycleaning solvent, mineral spirits paint thinner, engine fuels, or lubricants, on rubber parts as they will deteriorate the rubber.

*d.* The use of diesel fuel oil, gasoline, or benzene (benzol) for cleaning is prohibited.

*Table I. Operator Daily Service*

| Intervals | | | | Procedure |
|---|---|---|---|---|
| Before operation | During operation | At halt | After operation | |
| | | | | Usual conditions |
| X | -- | X | X | *Visual Inspection of Equipment.* Inspect for condition, security and wear. |
| | | | X | *Cleaning of Equipment.* Wipe dirt, oil, rust, corrosion, and debris from equipment. Refer to paragraphs 131 through 134 for cleaning instructions. |

*Table I. Operator Daily Service*—Continued.

| Intervals | | | | Procedure |
|---|---|---|---|---|
| After Operation | Before Operation | During Operation | At halt | |
| | | | | Usual conditions—Continued. |
| X | -- | X | X | *Operating Units.* Check all units for correct assembly and loose mounting. Adjust as necessary. |
| X | -- | -- | X | *Power Supplies.* Check for loose power supply connections; check for frayed or cracked insulation. |
| | X | -- | -- | *Operation.* While equipment is operating, check for unusual sounds, vibrations, or malfunction. |
| X | -- | -- | X | *Lubrication.* Lubricate in accordance with paragraphs 29 and 30. |
| | | | | Unusual conditions |
| X | X | X | X | *Extreme Cold.* (pars. 19 and 20). |
| X | X | X | X | *Extreme Heat.* (par. 21). |
| X | -- | X | X | *Extreme Wet.* (par. 22). |
| X | X | X | X | *Snow and Ice.* (par. 23). |
| X | -- | X | X | *Salt Water.* (par. 24). |
| X | -- | X | X | *Dust.* (par. 25). |
| X | X | X | X | *High Altitude.* (par. 26). |

*Table II. Preventive Maintenance Services*
1. Electrical System

| Item Inspected | Inspect for | Services required | Intervals | |
|---|---|---|---|---|
| | | | Weekly | Monthly |
| GENERATOR | Operation and function. | See technical manual listed in appendix I. | X | |
| WIRING AND POWER CORDS | Cracked protective covers. | Wrap cracked areas with electrical tape or replace as required. | X | |
| | Loose connections. | Tighten screws; replace connections. | X | |
| | Damaged plugs | Replace plugs. | X | |
| | Loose Wires. | Return wire to proper position. | X | |
| | Frayed wiring. | Wrap with electrical tape or replace as required. | | X |
| | Deterioration. | Remove deterioration sections, splice and wrap with electrical tape. | | X |
| | Broken conductors. | Splice; wrap splices with electrical tape. | X | |

*Table II. Preventive Maintenance Services*—Continued.
1. Electrical System—Continued.

| Item Inspected | Inspect for | Services required | Intervals | |
|---|---|---|---|---|
| | | | Weekly | Monthly |
| CIRCUIT BREAKERS, SAFETY SWITCHES, RECEPTACLES. | Condition. | Replace broken knobs, handles, covers, missing screws; etc. | X | |
| | Securtiy. | Tighten clamps, screws, knobs, and covers. | X | |
| | Damage. | Replace if major damage, repair minor damage. | | X |
| | Operation. | Operate breakers, repair or replace as necessary. Operate switches; repair or replace as necessary. Check receptacle with equipment cords plugged in; repair or replace inoperative receptacles. | X | |
| LAMPS. | Inoperative tubes and bulbs; inoperative starters. | Replace. | X | |
| | Inoperative ON, OFF switches. | Replace. | X | |

*Table II. Preventive Maintenance Services*—Continued.
2. Pneumatic System

| Item Inspected | Inspect for | Services required | Intervals | |
|---|---|---|---|---|
| | | | Weekly | Monthly |
| COMPRESSOR LINES AND HOSE. | Operation and function. | In accordance with technical manual for compressor (app. I). | X | |
| | Leaks. | Tighten or replace fittings, hose, or lines. | X | |
| | Security. | Tighten mounting clamps or install new clamps. | | X |
| | Damage. | Repair or replace damaged sections. | | X |
| QUICK DISCONNECT FITTINGS. | Leaks. | Replace seals, seats, or fittings, as necessary. | X | |
| | Ease of operation. | Replace plugs. | | X |
| CONTROLS | Sticking and binding. | Lubricate, repair or replace as necessary. | X | |
| | Leaks. | Replace packing rings. | X | |
| | Damage. | Repair or replace as necessary. | X | |
| INSTRUMENTS. | Cracked dial covers. | Replace. | | X |
| | Accuracy. | Remove for repair or calibration. | X | |
| | Damage. | Repair or replace as necessary. | | X |

*Table II. Preventive Maintenance Services*—Continued.
3. Hydraulic System

| Item inspected | Inspect for | Services required | Intervals | |
|---|---|---|---|---|
| | | | Weekly | Monthly |
| STORAGE CABINET DRAWERS. | Sticking, binding and distortion. | Lubricate (ch. 6, sec. II), aline or straighten as necessary. | | X |
| STORAGE CABINET HINGE POINTS. | Alignment, ease of operation, and condition. | Aline hinges, lubricate (ch. 6, sec. II) or replace as necessary. | | X |
| STORAGE CABINET EXTERIORS. | Corrosion, rust, chipped, or peeling paint. | Remove corrosion and rust (ch. 3, sec II), touchup or repaint as necessary. | | X |
| STORAGE CABINET LOCKING DEVICES. | Security, ease of operation and alignment. | Tighten bolts, re-aline, reposition, or replace as necessary. | | X |
| STORAGE CABINET MOUNTINGS. | Security. | Tighten or replace mounting bolts as necessary. | | X |
| BENCH TOP SURFACE. | Nicks, gouges, scratches. | Sand out, refinish (ch. 6). | | X |
| BENCH TOP MOUNTINGS. | Security. | Tighten or replace screws or bolts as necessary. | | X |

## Section IV. TROUBLESHOOTING

### 35. Use of Troubleshooting Section

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the shop set or any of its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause.

### 36. Procedure

To correct malfunctioning of equipment, the cause should be systematically isolated in accordance with instructions in the following paragraphs. If the correction of the malfunction is beyond the scope of the operator's function, refer the discrepancy to the proper maintenance echelon for correction.

### 37. Electrical Equipment Operates at Slow or Reduced Speed

| *Probable cause* | *Possible remedy* |
|---|---|
| Loose connectors | Tighten connectors. |
| One circuit breaker in "OFF" position (208–220 volt equipment) | Return breaker to "ON" position. |
| Cause beyond maintenance scope of operator | Notify second maintenance echelon. |

### 38. Electrical Equipment Stops During Operation

| *Probable cause* | *Possible remedy* |
|---|---|
| Power cord of equipment not properly plugged into receptacle | Remove plug from receptacle and reinsert fully into receptacle. |
| Equipment overheated | Reduce operating speed; allow equipment to cool and re-start. |
| Circuit breaker tripped to "OFF" position | Re-set circuit breaker to "ON" position; re-start equipment. |
| Cause beyond maintenance scope of operator | Notify second maintenance echelon. |

### 39. Electrical Equipment Will Not Start

| *Probable cause* | *Possible remedy* |
|---|---|
| Power cord of equipment not plugged into receptacle | Insert plug of equipment cord into receptacle. |
| No power from generator | Check for generator operation; restart generator. |
| Circuit breakers in electrical panel in OFF position | Re-set circuit breakers to ON position. |

| Probable cause | Possible remedy |
|---|---|
| Safety disconnect switch open | Close safety disconnect switch. |
| Cause beyond maintenance scope of operator | Notify second echelon maintenance. |

### 40. Pneumatic Equipment Operates at Slow or Reduced Speed

| Probable cause | Possible remedy |
|---|---|
| Power source not operating | Start power source; allow source pressure to reach operational level; re-start equipment. |
| Air pressure not properly regulated at water separator | Adjust pressure regulator to proper level (75 psi). |
| Loose connection at air hose quick disconnect adapter | Re-seat adapter. |
| Water in air | Drain water separator. |
| Cause beyond maintenance scope of operator | Notify second echelon maintenance. |

### 41. Pneumatic Equipment Stops During Operation

| Probable cause | Possible remedy |
|---|---|
| Power source stopped | Re-start power source. |
| Equipment overloaded | Reduce feed, pressure, or speed as necessary. |
| Air line disconnected | Connect air line. |
| Cause beyond maintenance scope of operator | Notify second echelon maintenance. |

### 42. Pneumatic Equipment Will Not Start

| Probable cause | Possible remedy |
|---|---|
| No air pressure—power source stopped | Start power source. |
| Air pressure cut off at pressure regulator | Adjust pressure regulator to obtain pressure of 75 psi. |
| Air hose of equipment not properly connected to adapter | Remove air hose from supply at quick disconnect; clean adapter and re-install hose. |
| Cause beyond maintenance scope of operator | Notify second echelon maintenance. |

### 43. Excessive Vibration of Equipment

| Probable cause | Possible remedy |
|---|---|
| Loose mounting bolts | Tighten or replace bolts as necessary. |
| Equipment load improperly distributed | Readjust load. |
| Operating speed of equipment too high | Reduce speed in accordance with TM for equipment (app. I). |
| Equipment load too heavy | Reduce load to recommended limits in accordance with TM for equipment (app. I). |
| Cause beyond maintenance scope of operator | Notify second echelon maintenance. |

### 44. Excessive Noise

| Probable cause | Possible remedy |
|---|---|
| Equipment receiving improper lubrication | Lubricate in accordance with paragraphs 29 and 30, and applicable LO. |
| Equipment being used improperly | Consult TM of equipment (app. I); use in accordance with recommendations in TM. |
| Cause beyond maintenance scope of operator | Notify second echelon maintenance. |

## Section V. ELECTRICAL SYSTEM

### 45. General

The electrical system of Shop Set, Aircraft Maintenance, Semitrailer Mounted, C–6, Machine Shop is a 110–220 volt, single phase and 208 volt, 3 phase system. Electrical power is supplied to the shop from a generator or external source to an electrical distribution panel mounted in the right rear interior corner of the shop (fig. 4). A safety disconnect switch is mounted below the electrical panel in order that the power source may be disconnected from the interior of the shop. The electrical panel contains 14 thermal-magnetic circuit breakers for supplying power to the various

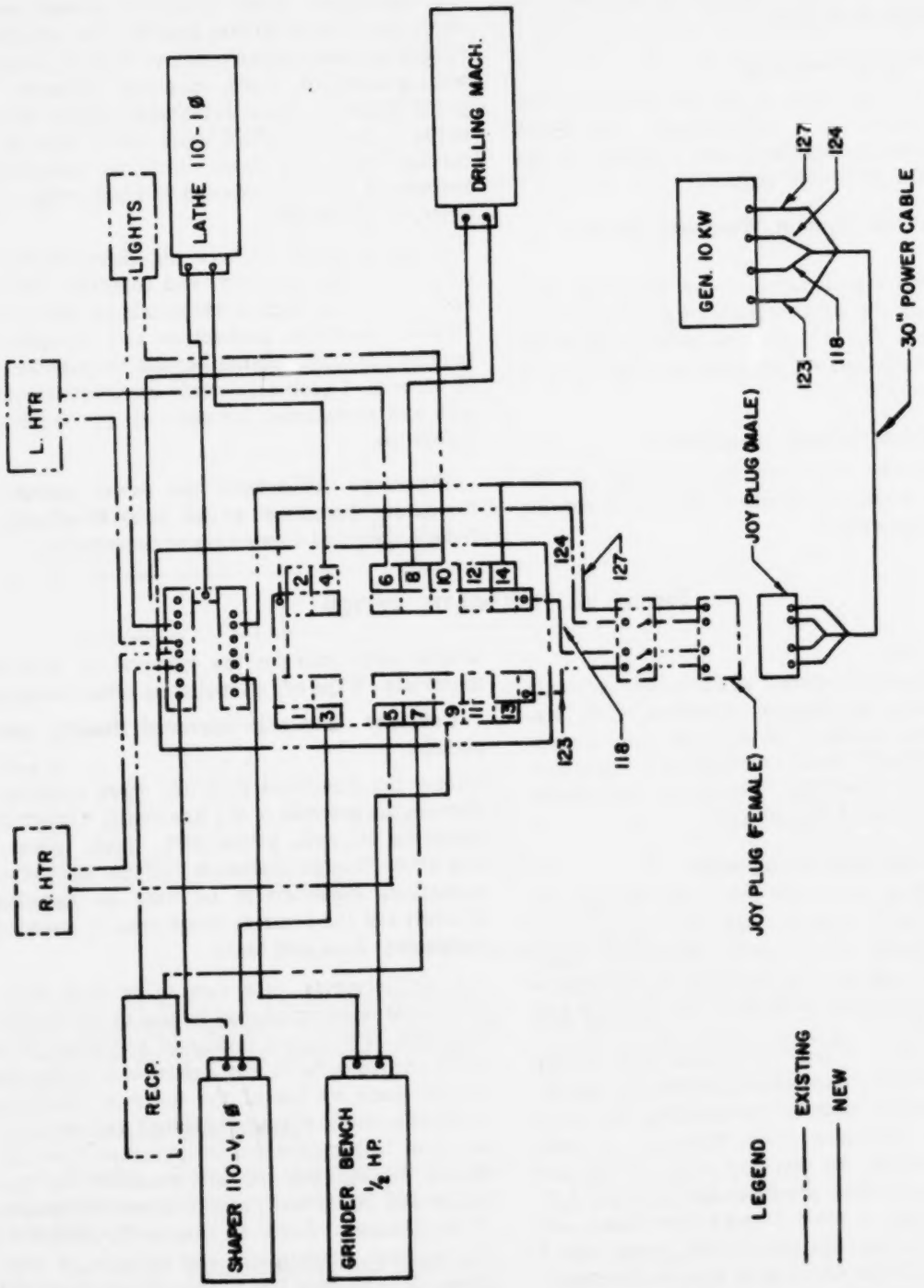



*Figure 8. Wiring diagram, shop C-6.*

circuits. The wiring diagram for shop set C–6, is contained in figure 8.

### 46. Electrical Generator

Operator maintenance for the generator consists of service and adjustments. The detail maintenance procedures are outlined in the TM for the generator (app. I).

### 47. Electrical System, Electrical Control Box

Operator maintenance of the electrical control box of the lathe consists of service and adjustments. The TM for the lathe outlines the detailed maintenance procedures to be followed by the operator.

### 48. Electrical Wiring Installation

*a. General.* Operator maintenance of the electrical wiring installation consists of service and adjustments.

*b. Servicing.* Keep electrical power cords clean and free of grease and oil. Do not allow rubber covered power cords to come in contact with grease, oil, fuels, cleaning solvents, or paint thinners. Store detachable electric power cords in space provided when not in use. Wipe foreign materials from electrical receptacles before use or when exposed to wind, dust, rain, snow, or salt water.

*c. Adjustments.* Check all male electrical connectors for security and condition before use. Adjust or tighten terminals as necessary. Female electrical connectors and receptacles require few adjustments beyond the tightening of screws. Check all female electrical connectors and receptacles for security or condition before use.

***Warning:*** **Disconnect the power source at the safety disconnect switch prior to adjusting female electrical connectors or receptacles.**

## Section VI. PNEUMATIC SYSTEM

### 49. General

The pneumatic system of Shop Set, Aircraft Maintenance, Semitrailer Mounted, C–6, Machine Shop, consists of controls and instruments, lines, and connectors. Controls, instruments, lines, and connectors are shown in figures 5 and 9 through 15.

### 50. Controls and Instruments

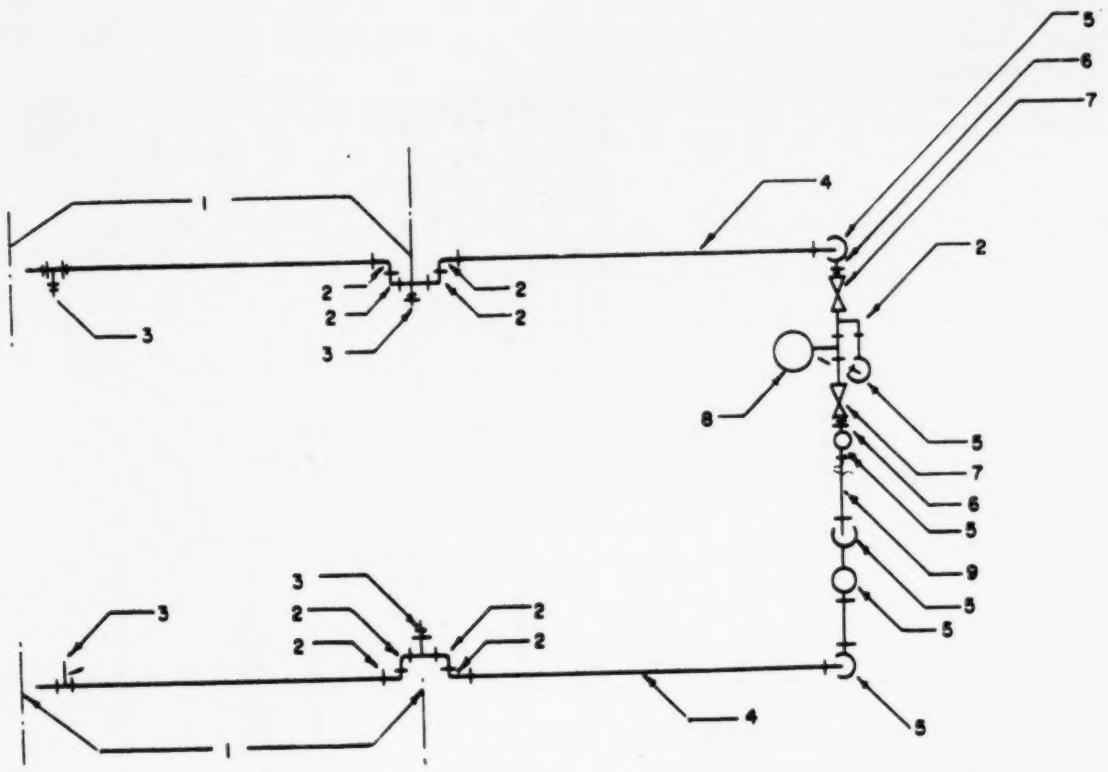
*a. General.* Controls and instruments for the pneumatic system (fig. 5), consists of pressure gages, oil and water separator, regulators, and valves. The operator is responsible for service and adjustment of the controls and instruments.

*b. Servicing.* Keep instrument dial covers and cases clean; avoid the use of oily, gritty, or dirty wiping material for cleaning dial cover and cases. Normally, plain water and a clean rag will suffice for cleaning dial covers and cases. When heavy accumulation of mud, dirt, grime, grease, or other foreign materials are to be removed from dial covers and cases, use a solution of water and a mild soap or detergent. Extreme cases may require the use of more active compounds for the removal of foreign materials. Wipe off all moisture after cleaning.

***Caution:*** **Use only approved cleaning compounds.**

Follow the directions carefully when applying. Service the controls of the pneumatic system by removing oil, grit, grime, dirt, mud, grease, and other foreign materials before and after operation. Materials to be used in cleaning controls are the same as those used in cleaning instrument dials and cases.

*c. Adjustments.* Operator adjustment of instruments is accomplished by use of the control provided. The operator should not attempt to make adjustments to any instrument except as can be made by use of the controls. Controls in the pneumatic system consist of valves which are used to regulate the air pressure from the source; to regulate the air pressure to the equipment being used, and to drain the system of condensates. Refer to chapter 2, section II for location, description, and purpose of controls. To regulate the supply of air from the source, open or close regulator as necessary.




LEGEND

| | | | |
|---|---|---|---|
| ELL 90° | | T | |
| ELL. 45° | | T OUT DN. | |
| ELL TND. DN | | PL. | |
| ELL. TND. DN | | GLV. | |
| ELL. UNION | | ELL. ST. 90° | |

1. VERTICAL POST
2. 1/4 IN. 90° GALV. STL. ELBOW
3. 1/4 IN. GALV. STL. TEE
4. 1/4 IN. GALV. STL. PIPE
5. 1/4 IN. GALV. STL. ELBOW
6. 1/4 IN. GALV. STL. UNION
7. 1/2 IN. COMB. GLOVE VALVE
8. OIL AND WATER SEPARATOR
9. 1/2 IN. GALV. STL. PIPE

*Figure 8. Pneumatic systems installation, top view.*

To adjust the supply of air to the equipment being used, turn regulator handle (fig. 5), in or out until an operating pressure of 75 psi is obtained.

## 51. Lines and Connectors

*a. General.* Operator maintenance of the air lines and connectors consist of service and adjustments.

*b. Servicing.* Keep air lines and connectors away from grease and oil. Remove foreign materials with approved cleaning compounds.

***Warning:*** **Use compressed air only for the the purpose for which it is intended. Serious injury can result from misuse.**

Report all leaks, breakage, or damage of air lines to second echelon maintenance for correction.

*Note.* Checks for leaks, breakage, and damage should be made before air-powered equipment is put into use.

*c. Adjustments.* Adjustments of lines and connectors (figs. 9, 10, and 12), by the operators consists essentially of adjusting adapters,

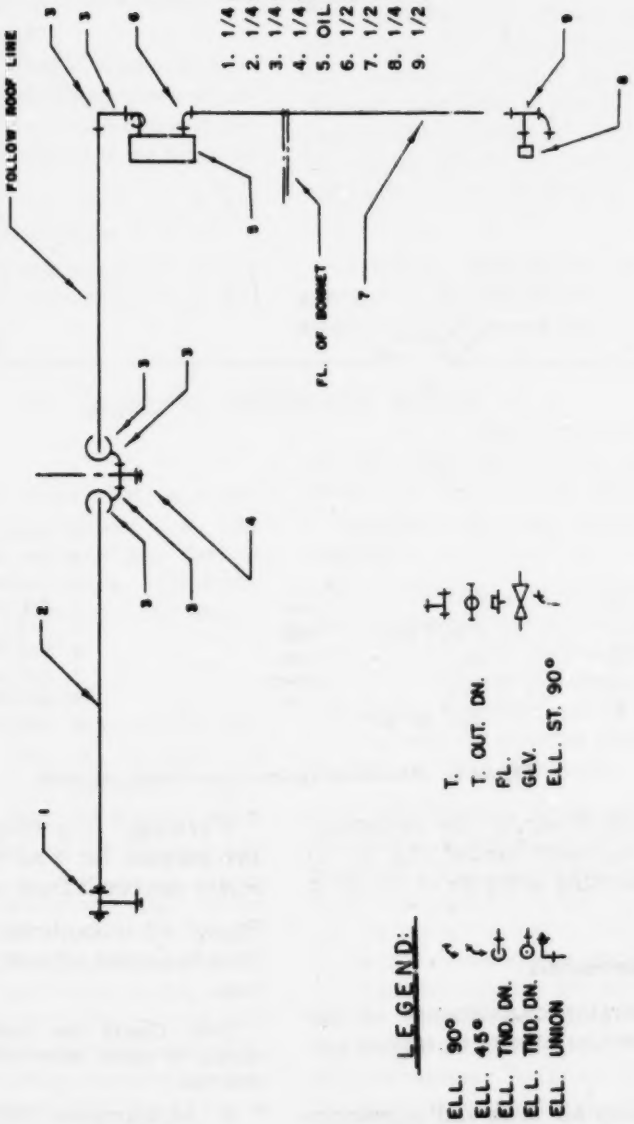



*Figure 10. Air line layout, side view.*

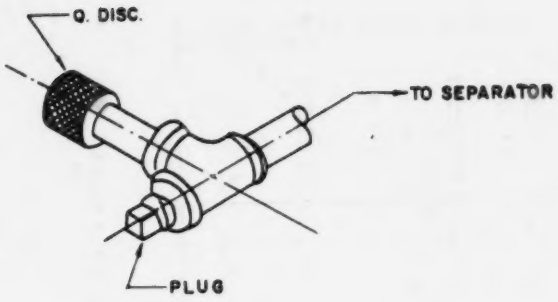



*Figure 11. Quick disconnect fitting.*

or quick disconnect fittings, to obtain a more positive seal to prevent loss of compressed air. These adjustments to adapters or fittings are made by hand and no special tools or equipment are required.

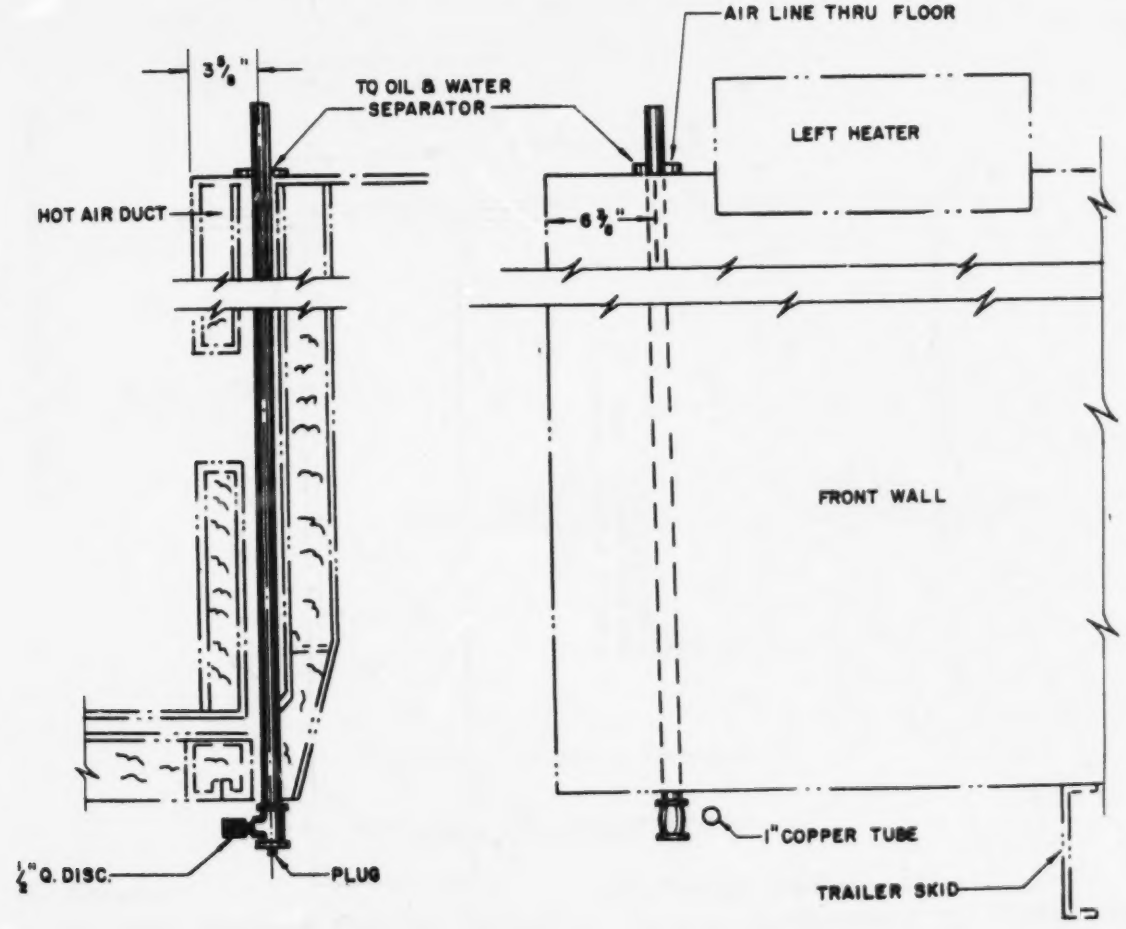



*Figure 12. Air line layout, front view.*

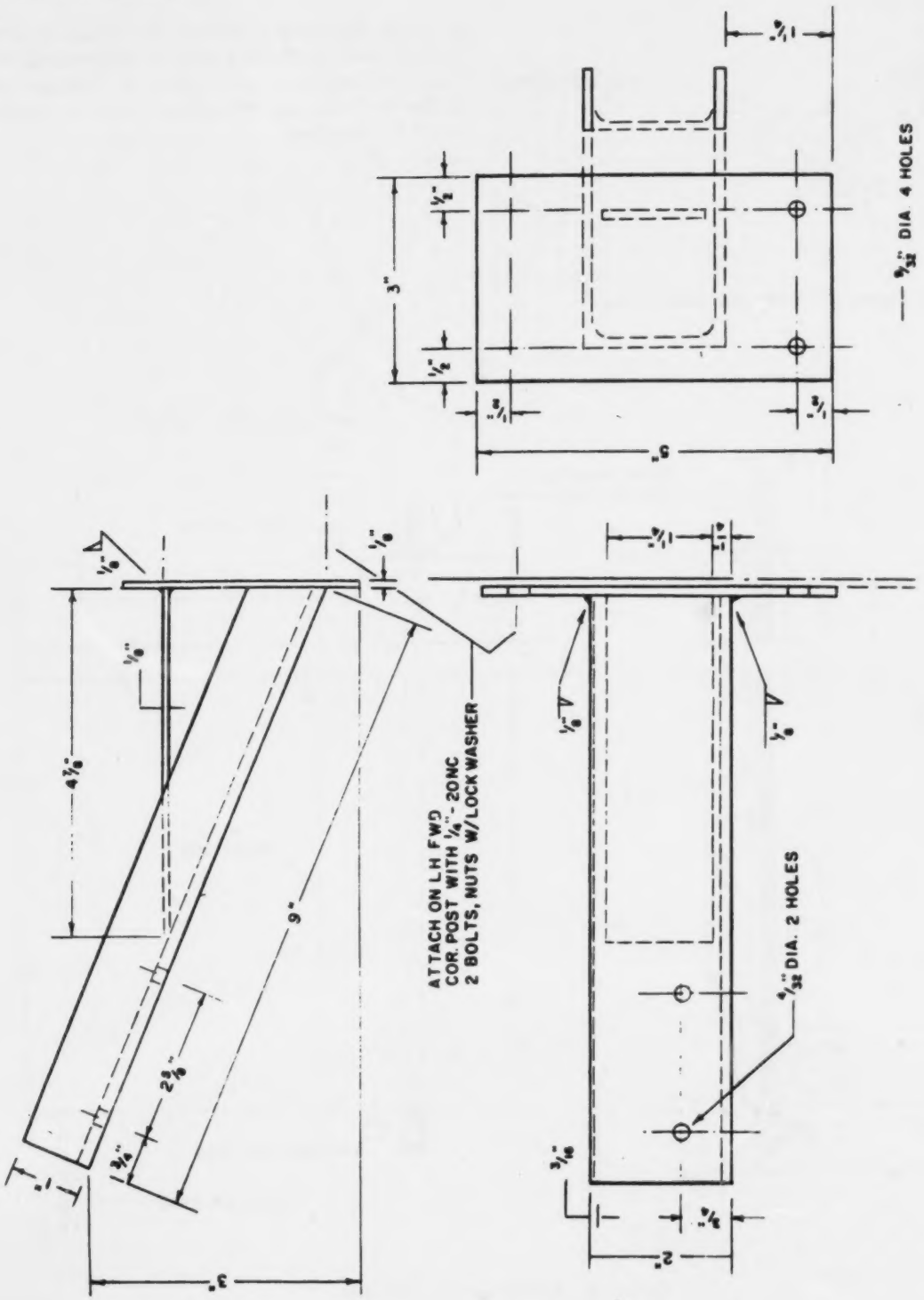



*Figure 13. Separator mounting bracket.*

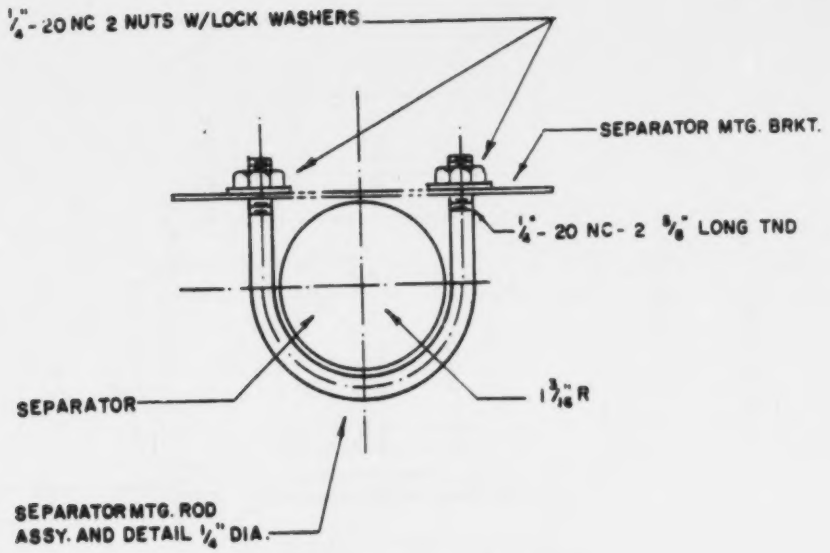



*Figure 14. Separator mounting rod.*

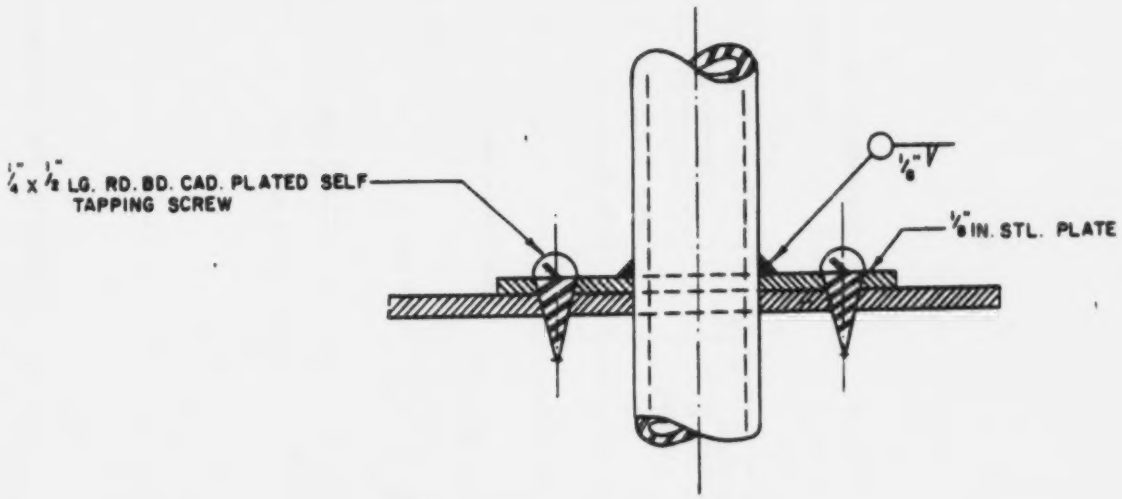



*Figure 15. Air line mounting, floor.*

## Section VII. UTILITY SYSTEM

### 52. General

The utility system of Shop Set, Aircraft Maintenance, Semitrailer Mounted, C-6, Machine Shop, consists of storage cabinets and bench tops. Layout of the utility system of the shop set is shown in figures 16 and 17.

### 53. Storage Cabinets

Operator maintenance of the storage cabinets is limited to service and adjustments. Service will consist of cleaning, lubrication, and other preventive maintenance services (par. 31-34). Use a solution of water and mild

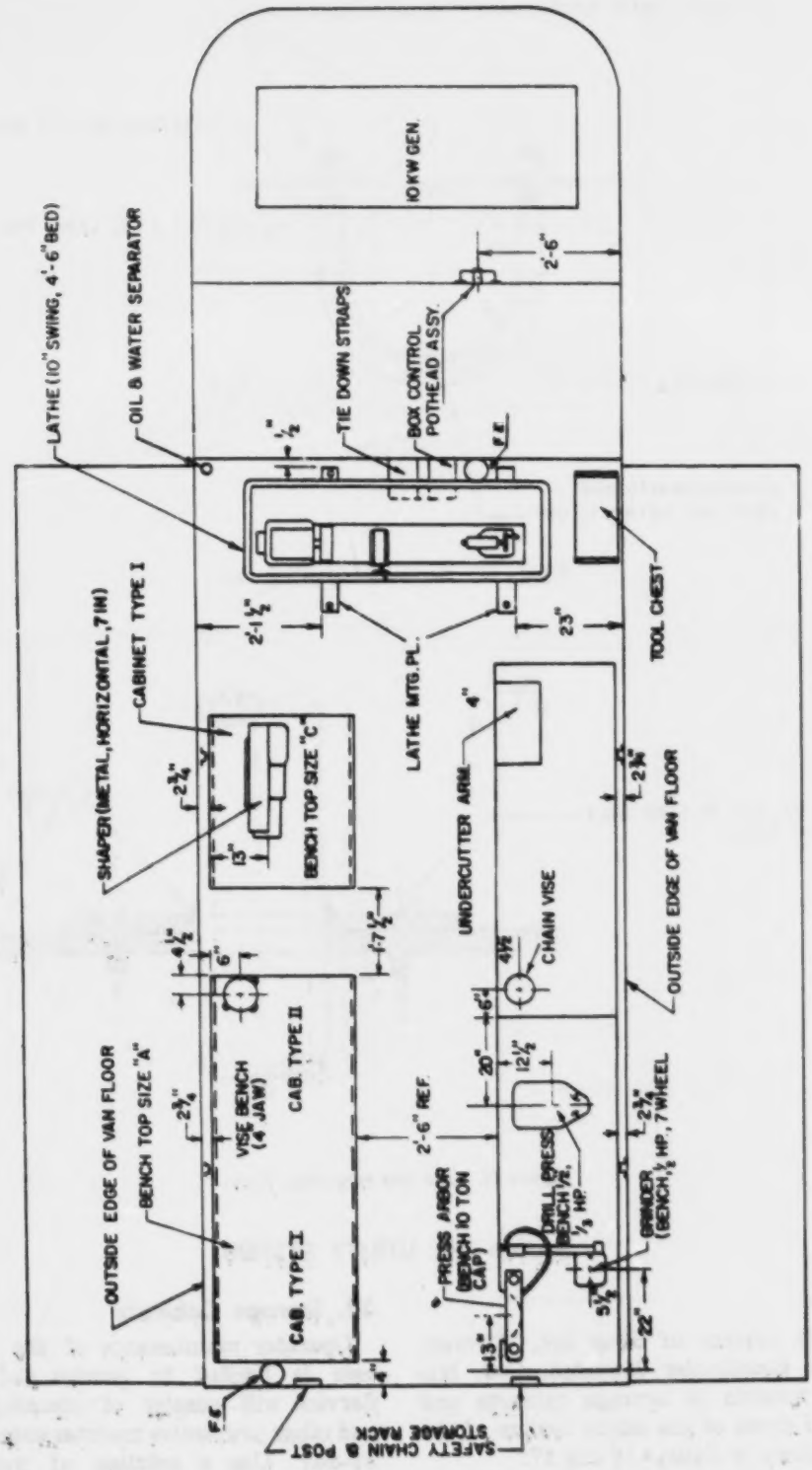



*Figure 16. Floor plan, layout, top view.*



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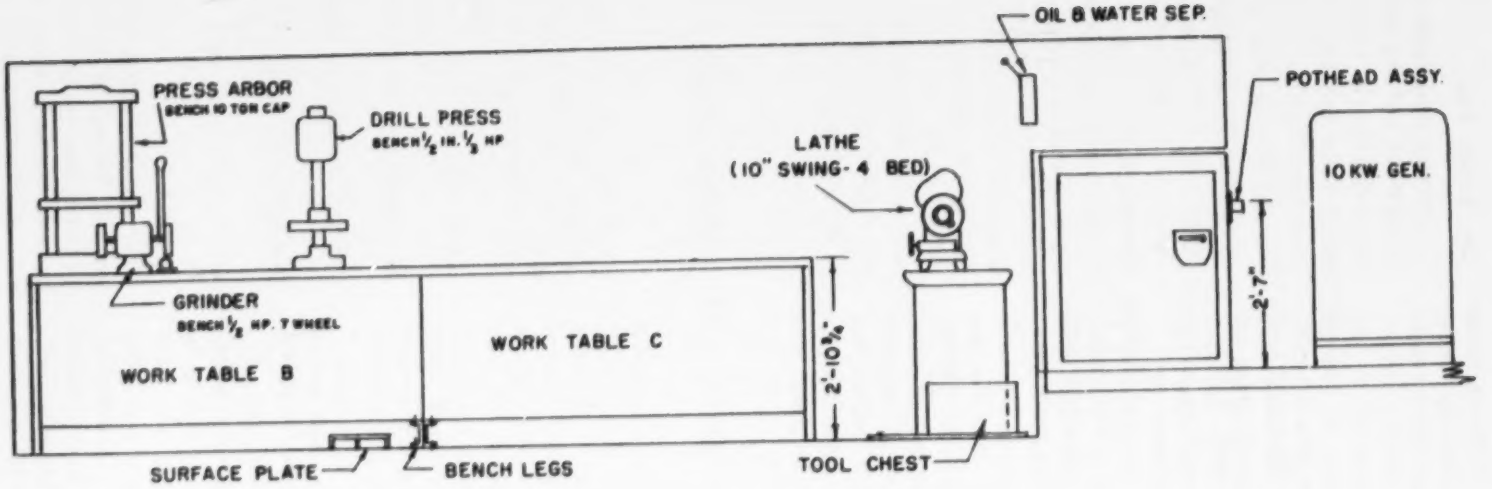



*Figure 17. Floor plan, layout, right side view.*

soap or detergent for cleaning purposes under usual operating conditions. Cleaning under unusual operating conditions may require more active cleaning agents, such as cleaning solvent. Care should be exercised in application and use of cleaning solvent so as not to damage the finish of the cabinets. Lubricate the cabinets at hinge points, on sliding surfaces, and at points of closing. Use a good grade of light lubricating oil; do not use more lubricant than is required to maintain normal operating conditions; wipe off excess lubricants with a clean, dry cloth. Adjustment of cabinets may be accomplished by the operator when disassembly is not required; generally this will consist of aligning hinges, slides, locking bars, and closing points.

*Note.* Adjustments should be made only when the operating efficiency of the cabinet will be impaired unless the misalinement is corrected.

## 54. Bench Tops

Operator maintenance of bench tops consists of cleaning and the application of wax or similar preservative. Foreign materials should be wiped from benches with a soft brush whenever there is an accumulation that could mar the surface. Stains, such as marking fluid, grease, oil or ink, may be removed by washing the bench top with a solution of mild soap and water. Wipe the surface with a clean cloth to remove moisture after cleaning is completed. Apply wax or similar preservative when cleaning is of such a severe nature as to remove protective coating or when the protective coating is marred by scratches, nicks, gouges, or exposure to the elements.

# CHAPTER 4

# SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE (OPERATOR)

## Section I. GENERAL

### 55. Purpose

This chapter furnished the operator with information for preparation of the equipment comprising Shop Set, Aircraft Maintenance, Semitrailer Mounted, C–6, Machine Shop, for shipment and limited storage. Instructions are also included for demolition of the shop set to prevent enemy use.

### 56. Methods

The methods outlined herein for shipment and limited storage apply to the shop set as a unit. It is the responsibility of the operator to become familiar with the technical manuals for each item of equipment in order to adequately prepare the item of equipment for shipment and limited storage. The methods outlined for demolition of equipment to prevent enemy use are intended as a guide for the operator.

## Section II. SHIPMENT AND LIMITED STORAGE

### 57. Shipment

The operator is responsible for the initial steps in preparing Shop Set, Aircraft Maintenance, Semitrailer Mounted, C–6, Machine Shop for shipment. These responsibilities consist of the following steps.

*a.* Perform "at halt" and "before operations" daily services (table I).

*b.* Place tools and equipment in storage bins or drawers provided.

*c.* Install locking bars in cabinet drawers (fig. 6).

*d.* Secure equipment in open bins with web straps or special fastenings.

*e.* Store cables and hose in storage boxes.

### 58. Limited Storage

*a. General.* A shop set which is temporarily not in use, will be placed in limited storage (not to exceed 6 months), when authorized by major commanders or heads of Department of the Army agencies. The responsibility for transportation corps mechanical equipment stored under such authorization will remain with the organization or activity to which issued. Equipment no longer required for accomplishment of the assigned mission will be returned to stock. When the shop set is placed in limited storage it will be preserved as specified. Equipment will not be blocked up and will be so spaced, where practicable, to provide independent access to each item.

*Note.* When equipment is to be stored for 30 days or less, clean and oil with light lubricating oil, Federal Specification VV–O–526.

*b. Operator responsibility.* The operator of the equipment is responsible for certain phases of preparation for limited storage; normally these responsibilities will coincide with those listed in paragraph 7 (lubrication) and par. 57 (shipment). Technical manuals for individual items of equipment provide the operator with the necessary information required to accomplish limited storage of the equipment.

## Section III. DEMOLITION TO PREVENT ENEMY USE

### 59. General

*a.* Destruction of the shop set, when subject to capture or abandonment in a combat zone, will be undertaken by the operator only when in the judgment of the unit commander concerned, such action is necessary in accordance with orders of, or policy established by the Army commander.

*b.* The information which follows is for guidance only. Certain of the procedures outlined require the use of explosives and incendiary grenades which normally may not be authorized items for the using organization. The issue of these and related materials, and the condition under which destruction will be effected, are command decisions in each case, according to the tactical situation. Of the several means of destruction, those most generally applicable are:

(1) *Mechanical.* Requires ax, pick mattock, crowbar, similar implement.

(2) *Burning.* Requires gasoline, oil, incendiary grenades, or other flammables.

(3) *Explosive.* Requires suitable explosives or ammunition.

(4) *Gunfire.* Includes artillery, machine guns, rifles using rifle grenades, and launchers using antitank rockets. Under some circumstances, hand grenades may be used.

*c.* In general, destruction of essential parts followed by burning will be sufficient to render the shop set useless. However, selection of the particular method of destruction requires imagination and resourcefulness in the utilization of the facilities at hand under the existing conditions. Time is usually cirtical.

*d.* If destruction to prevent enemy use is resorted to, the shop set must be so badly damaged that it cannot be restored to a usable condition in the combat zone either by repair or cannibalization. Adequate destruction requires that all parts essential to the operation of the material, including essential spare parts, be destroyed or damaged beyond repair. However, when lack of time and personnel prevents destruction of all parts, priority is given to the destruction of those parts most difficult to replace. Equally important, the same essential parts must be destroyed on all like material so that the enemy cannot construct one complete unit from several damaged ones.

*e.* If destruction is directed, consideration should be given to (1) and (2) below.

(1) Selection of a point of destruction that will cause greatest obstruction to enemy movement and also prevent hazard to friendly troops from fragments or richocheting projectiles which may occur incidental to the destruction.

(2) Observance of appropriate safety precautions.

### 60. Destruction by Burning

*a.* Remove and empty portable fire extinguishers.

*b.* Using an ax, pick mattock, sledge, or heavy implement, smash all vital elements.

*c.* Puncture fuel tanks as near the bottom as possible collecting gasoline for use as outlined in *d* below.

*d.* Pour gasoline and oil in and over the entire equipment; ignite by using a gasoline soaked rope for a fuse. If gasoline and oil are not available, use incendiary grenades. Take cover.

***Warning:*** **Due consideration should be given to the highly flammable nature of gasoline and its vapor. Carelessness in its use may result in painful burns.**

### 61. Destruction by Use of Explosives

*a.* Remove and empty portable fire extinguishers.

*b.* Prepare 4 charges (1 charge 2 ea. 1 lb. blocks) of EXPLOSIVE, TNT. Place charges as in (1), (2), (3), and (4) below.

(1) Place 1 charge of explosive on the front of the shop on the platform between the generator and the storage compartment.

(2) Place 1 charge of explosive between the axles of the shop, at the approximate midpoint of the axles.

(3) Place 1 charge of explosive on the shop floor at the approximate center width of the shop and approximately 4 feet from the forward wall.

(4) Place 1 charge of explosive on the shop floor at the approximate center width of the shop and approximately 6 feet from the rear wall.

*c.* Connect the 4 charges for simultaneous detonation with detonating cord. Provide for dual priming to minimize the possibility of a misfire. For priming, either a nonelectric blasting cap crimped to at least 5 feet of safety fuse (safety fuse burns at the rate of 1 foot in 30 to 45 seconds; test before using), or an electric blasting cap and detonating cord may be used. If a nonelectric blasting cap and safety fuse are used, the fuse should be sufficiently long and so positioned that it may be ignited from outside the shop set. Safety fuse, which contains black powder, and nonelectric blasting caps must be protected from moisture at all times. The safety fuse may be ignited by a fuse lighter or a match; the electric blasting cap requires a blasting machine or equivalent source of electricity.

***Warning:*** **Keep the blasting caps, detonating cord, and safety fuse separated from the charges until required for use.**

*d.* Detonate the charges. If primed with nonelectric blasting cap and safety fuse, ignite and take cover. If primed with electric blasting cap, take cover before firing the charges.

***Warning:*** **The danger zone is approximately 250 yards; take cover without delay as an early explosion may result from incendiary fires.**

## 62. Destruction by Gunfire

*a.* Remove and empty portable fire extinguishers.

*b.* Destroy the shop set by gunfire using artillery, machine guns, rifles using rifles grenades, or launchers using antitank rockets. Although one well-placed direct hit may render the shop set temporarily useless, several hits are usually required for complete destruction unless an intense fire is started, in which case the shop set may be considered destroyed.

***Warning:*** **Firing artillery at ranges of 500 yards or less should be from cover. Firing rifle grenades or antitank rockets should be from cover.**

# CHAPTER 5

# OPERATING INSTRUCTIONS (SECOND ECHELON)

## Section I. SERVICE UPON RECEIPT OF EQUIPMENT

### 63. General

Shop sets when received are to be unloaded, uncrated, depreserved, and inspected by second echelon maintenance personnel.

### 64. Unloading and Uncrating New Equipment

*a. Unloading.* Remove shoring, blocks, tiedowns, and chocks before unloading equipment.

***Warning:* Remove nails and loose strapping from unloading area.**

***Caution:* Lift only at hoisting points provided when equipment is to be unloaded from heigths above ground level (TM 9–2330–238–14). Do not allow equipment to be dropped while unloading.**

*b. Uncrating.* Unpack crated equipment as close as possible to the point of use; remove nails, straps, and OVM from equipment. Place equipment in position for use.

### 65. Depreservation

*a.* Observe all warning tags and instructional guides attached to the equipment.

*b.* Remove preservatives from exterior surfaces with solvent, Federal Specification P–S–661.

*c.* Preservatives applied to interior surfaces need not be removed except for draining.

*d.* Examine equipment carefully to detect and remove tape, barrier material, and other packaging materials which may be placed over breathers, vents, and other openings. Particular attention should be given to detection and removal of paper between or under brushes of large electrical motors.

*e.* Components which are packed separately from the equipment will be installed as directed in chapter 8.

### 66. Inspection

Inspect all equipment for condition, correctness of assembly, security, and wear (ch. 3, sec. III).

## Section II. CONTROLS AND INSTRUMENTS

### 67. General

**This section describes, locates, illustrates, and furnishes second echelon maintenance personnel with information pertaining to the various controls and instruments provided for operation of the equipment.**

### 68. Electrical Controls and Instruments

**These controls and instruments are provided to supply, regulate, and distribute the electrical power required to operate the shop. Detailed description, location, and illustrations are contained in paragraphs 8 through 10 and 45 through 48.**

### 69. Pneumatic Controls and Instruments

Pneumatic controls and instruments regulate and distribute the compressed air required to operate the pneumatic equipment of the shop. Refer to paragraphs 8 through 10 and 45 through 48 for detailed description, location, and illustration of pneumatic controls and instruments.

## Section III. OPERATION UNDER USUAL CONDITIONS

### 70. General

Instructions in this section are published for the information and guidance of second echelon maintenance personnel responsible for the operation of this equipment. It is essential that the operator know how to perform every operation the equipment is capable of performing.

### 71. Preparation for Use of Equipment

*a. Exterior.*

(1) Install ground stake, located in compartment below rear doors, by fastening cable to bolt provided with wing nut, on left rear skid (fig. 18).

(2) Position chocks.

(3) Install the stabilizing jacks (fig. 19), and adjust them as necessary.

(4) Remove entrance ladders from rear doors and position as shown in figure 20.

(5) Open right rear door (fig. 20 and TM 9–2330–238–14).

*b. Opening of Van.* All van sides open from inside the van (fig. 21, and TM 9–2330–238–14).

(1) Release over-center clamps, front and rear, at top of each door.

*Figure 18. Installation of ground stake.*

*Figure 19. Installation and adjustment of stabilizing jacks, positioning front ladder.*

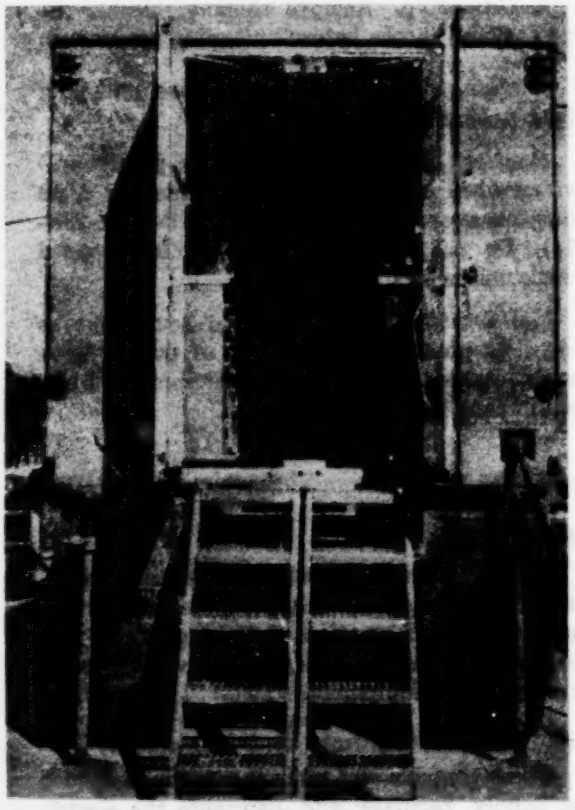


*Figure 20. Position rear entrance ladders and opening rear doors.*

(2) Release locks on center post, two on each side (fig. 22 and TM 9–2330–238–14).
(3) Push top and bottom doors outward at the same time (fig. 23).

*Figure 21. Opening folding shop sides, step I.*

*Figure 22. Opening folding shop sides, step II.*

*Figure 23. Opening folding shop sides, step III.*

*Figure 24. Chain guard railing installed.*

***Caution:*** **Do not let doors fall free, assistance from outside is necessary.**

(4) Install chain guard railing (fig. 24 and TM 9–2330–238–14).

## 72. Shutdown of Shop Set

*a.* Shutdown instructions for the units comprising Shop Set, Aircraft Maintenance, Semitrailer Mounted, C–6, Machine Shop are contained in the manuals issued for the individual

item (app. I). It is essential that the operator understand these instructions.

*b.* Disconnect external power source.

*c.* Close van sides and rear doors (fig. 1 and TM 9–2330–238–14).

*d.* Remove and store entrance ladders (fig. 1 and TM 9–2330–238–14).

*e.* Check security of chocks.

### 73. Operating Details

*a. General.* These instructions provide second echelon maintenance personnel with the necessary details for operation of the equipment comprising the shop set.

*b. Electrical System—Generator Operated.*

(1) Remove power cord from stowage box.

(2) Inspect cord for breaks, security of connectors, and frayed cover material.

(3) Install power cord from generator to external power receptacle.

(4) Check operation of generator; refer to generator TM (App. I), for procedure and details of operation.

*c. Electrical System—Auxiliary Power Operated.*

(1) Inspect auxiliary power cord for breaks, security of connectors, and frayed cover material.

(2) Install auxiliary power cord form auxiliary power source to external power receptacle (fig. 5).

*d. Pneumatic System—Auxiliary Power Operated.*

(1) Inspect lines, fittings, and connectors for leaks and security.

(2) Install line from auxiliary to air connection (fig. 11).

(3) With auxiliary air supply connected, inspect lines, connections, fittings, controls, and instruments for leaks, security, and proper operation.

### 74. Movement of Equipment

*a.* Open van in accordance with instructions contained in par. 71.

*b.* Close van sides and rear doors (fig. 1).

*c.* Remove and stow entrance ladders (fig. 1).

***Caution:*** **This operation must be performed before attaching tractor to semitrailer.**

*d.* Disconnect external power source(s), electrical or pneumatic.

*e.* Remove and stow bonding stake.

*f.* Remove chocks and secure in "travel" position.

## Section IV

## OPERATION OF ONE UNIT IN CONJUNCTION WITH ANOTHER ACCESSORY OR AUXILIARY

### 75. General

Auxiliary equipment may be operated in conjunction with Shop Set, Aircraft Maintenance, Semitrailer Mounted, C–6, Machine Shop, by use of a pothead assembly for electrical connections and by use of an adapter installed on the oil and water separator for pneumatic connections.

### 76. Pothead Assembly

The pothead assembly is mounted on the outside front wall of the storage conpartment (fig. 16). When the shop generator is operating, a power cord may be connected to the pothead assembly and the female connector of the power cord installed in the external power receptacle of an auxiliary shop. This connection is used to supply electrical power directly from the generator to the auxiliary shop and can only be used when the generator is in operation.

### 77. Air Supply Adapter

The adapter connection used to transfer compressed air from an auxiliary source is located at the left, front of the shop and is used when a hose is connected to the auxiliary source.

## Section V. OPERATION UNDER UNUSUAL CONDITIONS

### 78. General

This section contains information pertinent to second echelon maintenance operation of Shop Set, Aircraft Maintenance, Semitrailer Mounted, C-6, Machine Shop, under unusual conditions. Refer to paragraphs 18 through 26 for additional information. Report recurrent failure of equipment resulting from operation under unusual conditions on DA Form 468.

### 79. Removable Canvas Side Wall

The removable canvas sidewall has four sections. The side walls are fastened at the top with snap-type fasteners. The bottoms are attached with web belting, incorporating quick releases and belt-tightening features. The bottom edges also have 1/2-inch grommets so rope may be used in lieu of the web straps when needed. Attached to the bottom side door are cleats for use with either web strapping or rope (fig. 25).

***Caution:*** **Canvas should not be stored when wet.**

### 80. Extreme Cold Weather Conditions

Special equipment is provided for the protection of equipment in extreme cold weather conditions (below 0°F.). Individual items of equipment should be protected in accordance with the TM for the item (app. I). Refer to TM 9-2330-238-14, for specific information concerning the van which houses the shop.

*Figure 25. Canvas sidewalls installation.*

### 81. Extreme Hot Weather Conditions

Frequent inspections of bearings, cooling systems, and lubricants should be accomplished in extreme hot weather to insure proper operation of the equipment. Refer to paragraph 21 for additional instructions regarding operation of equipment in extreme hot weather conditions.

### 82. Operation in Extreme Wet Climate

Inspect bearings and other lubricated surfaces for possible washing away of lubricants. These inspections should be made prior to starting and at halt of equipment. Additional precautionary instructions for operation in extreme wet climate are listed in paragraph 22.

### 83. Operation in Salt Water Areas

Wash exterior of shop with fresh water to remove salt water residue. Accomplish salt water residue removal as often as is necessary to keep equipment clean and to combat corrosion. Treat unprotected surfaces of tools and equipment which are in contact with salt water as directed in paragraph 83.

### 84. Operation in Extremely Dusty Conditions

Inspect machined surfaces, bearings, and lubricated surfaces for dust accumulations. Clean bearings and surfaces as directed in chapter 3, sections II and III.

### 85. Operation at High Altitudes

Inspect intake ducts, filters, cooling systems, and pneumatic equipment at frequent intervals to insure proper operation at high altitudes. Observe precautions listed in paragraph 85 and in the TM for the item of equipment (app. I).

# CHAPTER 6

# MAINTENANCE INSTRUCTIONS (SECOND ECHELON)

## Section I. SPECIAL ORGANIZATIONAL TOOLS AND EQUIPMENT

### 86. Tools and Equipment

No special tools or equipment are required by second echelon maintenance personnel to maintain the shop as a unit. Any special tools or equipment required for maintenance of individual items of equipment are listed in the TM for the item (app. I).

### 87. Repair Parts

Parts required by second echelon maintenance personnel for maintenance of the shop are listed in chapters 8 and 9.

## Section II. LUBRICATION

### 88. General

This section provides second echelon maintenance personnel with lubricating instructions for the shop. Lubrication orders, listing lubricants by type required for each application, are prepared for each item of equipment and are contained in the TM for the item (app. I).

### 89. Special Lubrication Instructions

Refer to chapter 2, section I, chapter 3, section II, and III, and chapter 5, sections III and IV, for detailed lubrication procedures for the shop.

## Section III. PREVENTIVE MAINTENANCE SERVICES

### 90. General

Preventive maintenance is performed by organizational maintenance personnel at weekly and monthly intervals. The weekly intervals will be equivalent to a maximum of 60 hours of use. The monthly intervals will be equivalent to 4 weeks or a maximum of 240 hours of use, whichever occurs first. The preventive maintenance services to be performed at these regular intervals are listed and described in this section. The maintenance function appearing in the columns opposite each service referred to in table II indicated that a report of the service should be made at the interval shown. These maintenance functions appear in the second column and the interval at which the service is to be performed, appears in the fourth and fifth columns. The first column headed "Item inspected" is provided for the information of the personnel performing the inspection. A listing in this column indicates that an inspection should be made of a list of items in accordance with the instructions given in the text opposite. The indicated items and instructions constitute minimum inspection requirements for the equipment.

### 91. Weekly and Monthly Preventive Maintenance

The services listed in table II, are minimum requirements and will be performed in accordance with the instructions therein.

## Section IV. TROUBLESHOOTING

### 92. Use of Troubleshooting Section

This section contains troubleshooting information useful to second echelon personnel in diagnosing and correcting unsatisfactory operation or failure of the shop set or any of the components.

### 93. Procedure

Troubleshooting is a systematic isolation of defective components by means of an analysis of the shop set trouble symptoms, testing to determine the defective component, and applying the remedies. To correct malfunctioning of equipment, the probable cause should be systematically isolated in accordance with instructions in paragraphs 94 through 101.

### 94. Electrical Equipment Operates at Slow or Reduced Speed

| *Probable cause* | *Possible remedy* |
|---|---|
| Loose connectors | Tighten connectors. |
| Low voltage | Check incoming voltage. |
| Improper source of voltage. | Check source voltage for specified requirements. |
| Cause beyond repair scope of operator | Notify supporting field maintenance unit. |

### 95. Electrical Equipment Stops During Operation

| *Probable cause* | *Possible remedy* |
|---|---|
| Power source disconnected. | Check generator, external power cable, cords, and circuit breakers. |
| Overheating of equipment. | Check equipment for speed setting and voltage as necessary. Allow equipment to cool and re-start. |
| Overloading | Adjust feed or speed of equipment as necessary. |
| Cause beyond repair scope of operator | Notify supporting field maintenance unit. |

### 96. Electrical Equipment Will Not Start

| *Probable cause* | *Possible remedy* |
|---|---|
| Power cord disconnected. | Check rear power outlet for proper installation of power cord from generator or auxiliary power source. |
| One or more circuit breakers inoperative | Check circuit breakers and replace as necessary. |
| Safety switch inoperative. | Replace safety switch. |
| Corroded prong or loose connection at power receptacle | Clean prong and check connectors and plug for tightness. |
| Cause beyond repair scope of operator | Notify supporting field maintenance unit. |

### 97. Pneumatic Equipment Operates at Slow or Reduced Speed

| *Probable cause* | *Possible remedy* |
|---|---|
| Low air pressure | Check air pressure gages and regulators; adjust as necessary. |
| Leak in air line (s) or loose connector (s) | Check air pressure at equipment; retrace air line(s); check for leaks and loose connector(s). |
| Cause beyond repair scope of operator | Notify supporting field maintenance unit. |

### 98. Pneumatic Equipment Stops During Operation

| *Probable cause* | *Possible remedy* |
|---|---|
| Failure of source of power. | Check power source for operating; check incoming auxiliary line for pressure. |
| Overloading | Reduce feed, pressure on work, or speed as necessary. |
| Cause beyond repair scope of operator | Notify supporting field maintenance unit. |

### 99. Pneumatic Equipment Will Not Start

| *Probable cause* | *Possible remedy* |
|---|---|
| Source of power disconnected | Check connections at points of installation. |
| Faulty check valves | Check air pressure at regulators; replace check valves as necessary. |
| Break in air hose of equipment | Chck air hose and replace as necessary. |

| *Probable cause* | *Possible remedy* |
|---|---|
| Cause beyond repair scope of operator | Notify supporting field maintenance unit. |

### 100. Excessive Vibration of Equipment

| *Probable cause* | *Possible remedy* |
|---|---|
| Loose mounting bolts | Check mountings for security; tighten or replace bolts as necessary. |
| Equipment improperly loaded | Reduce loads, readjust load, or reduce speed as necessary. |
| Cause beyond repair scope of operator | Notify supporting field maintenance unit. |

### 101. Excessive Noise

| *Probable cause* | *Possible remedy* |
|---|---|
| Lack of lubrication | Lubricate equipment in accordance with paragraphs 30 and 31. |
| Improper use of equipment | Check specific TM of equipment (app. I), for proper use. |
| Cause beyond repair scope of operator | Notify supporting field maintenance. |

## Section V. RADIO INTERFERENCE SUPPRESSION

### 102. Purpose

*a.* Radio interference suppression is the elimination or minimizing of the electrical disturbances which interfere with radio reception or disclose the location of the equipment to sensitive electrical detectors. Therefore, it is very important that equipment with, as well as equipment without radios be suppressed properly to prevent interference with radio reception of surrounding equipment, or disclosing locations.

*b.* Suppression in the equipment is accomplished by the use of resistor suppressors and capacitors. In addition, metal parts of the equipment are formed into a shield by use of braided bond straps and toothed washers, confining electrical disturbances so they cannot disturb receiving equipment.

### 103. Inspection

The operator of the equipment is responsible for the inspection of radio interference suppressors and the correction or reporting of discrepancies discovered. Those sections of technical manuals (app. I), which contain detailed instructions for radio interference suppression form a part of this manual. It is the responsibility of the operator to familiarize himself with these manuals and to perform the inspections listed therein.

## Section VI. ELECTRICAL SYSTEM

### 104. General

A detailed description of the electrical system is contained in chapter 8, section V.

### 105. Electrical Generator

Second echelon maintenance for the generator consists of inspection and replacement of parts in accordance with the TM for the generator (app. I), and paragraphs 90 through 101 of this manual.

### 106. Electrical Wiring Installation

*a. General.* The electrical wiring installation (fig. 8), is comprised of:

(1) Power cord for connecting auxiliary power source to the external power receptacle of the shop.

(2) Conduit encased wires connecting the external power receptacle with the safety disconnect switch and continuing to the control panel.

(3) Wiring from the control panel to the various receptacles which supply current to the equipment to be operated.

*b. Second Echelon Maintenance.* Inspect and replace as necessary: wiring, connectors, receptacles, and conduit in accordance with

instructions in paragraph 90 through 101 and appendix II.

*Warning:* Disconnect power source before servicing.

### 107. Electrical Switches and Circuit Breakers

*a. General.* Electrical switches and circuit breakers are installed in the electrical system (fig. 4), to allow individual control of circuits, distribute current, and as safety devices.

*b. Second Echelon Maintenance.* Inspect and replace switches or circuit breakers as necessary in accordance with instruction contained in paragraphs 90 through 101 and appendix II.

### 108. Lighting System

Inspect and replace inoperative lighting tubes or bulbs in accordance with instructions in paragraphs 90 through 101, and appendix II.

*Note.* For details of shop lighting system, refer to TM 9-2330-238-14.

## Section VII. PNEUMATIC SYSTEM

### 109. General

A detailed description of the pneumatic system is contained in paragraphs 49 through 51.

### 110. Lines and Hose

Second echelon maintenance of air lines and air hose (figs. 9, 10, and 12), will consist of inspection and replacement of parts in accordance with paragraphs 90 through 101 and appendix II. Replacement parts are listed in chapters 8 and 9.

### 111. Controls and Instruments

Controls and instruments (fig. 5), will be maintained by second echelon maintenance personnel to the extent authorized in appendix II, and in accordance with instructions in paragraphs 90 through 101. Refer to paragraphs 67 through 69 for description, location, and illustration of controls and instruments.

## Section VIII. UTILITY SYSTEM

### 112. Storage Cabinets

Second echelon maintenance of storage cabinets consists of inspection and replacement of parts as authorized by appendix II. Inspect and replace parts in accordance with instructions in paragraphs 90 through 101. Refer to chapter 9 for replacement and repair parts.

### 113. Bench Tops

Second echelon maintenance for bench tops will consist of inspection and replacement of damaged or missing parts as authorized by appendix II.

# CHAPTER 7

# SHIPMENT AND LIMITED STORAGE (SECOND ECHELON)

## Section I. SHIPMENT WITHIN CONTINENTAL UNITED STATES

### 114. General

Before shipment of the shop set within the continental United States, perform the procedures for limited storage listed in paragraphs 122 through 128.

### 115. Preparation for Shipment

In addition to the instructions contained in paragraphs 57 and 58, perform the preparation listed in TM 9–2330–238–14.

### 116. Hoisting, handling, and loading

Refer to TM 9–2330–238–14.

### 117. Securing

Refer to TM 9–2330–238–14 and paragraph 16 of this manual.

### 118. Methods of Transportation

Use flatcars, boxcars, or vehicular transportation for transporting the shop set.

### 119. Shipping Documents

Prepare all Army shipping documents accompanying the shop set in accordance with instructions listed in the TM for the item of equipment (app. I).

***Warning:*** **The height and width of shop sets, when prepared for rail transportation, must not exceed the limitations indicated by the loading table in the applicable Army Regulation. Local transportation officers must be consulted about limitations of the particular railroad lines to be used for the movement in order to avoid delays, dangerous conditions, or damage to equipment.**

## Section II. SHIPMENT OUTSIDE CONTINENTAL UNITED STATES

### 120. General

The procedures for shipment outside continental United States are essentially the same as those listed in section I. Exceptions are in the methods of preparation for shipment; marine transportation will normally be used and the shop set will be secured in cargo holds or on decks of ships. Refer to TM 9–2330–238–14 for methods of securing, net handling, and boom procedures.

### 121. Preparation for Shipment

Waterproof the shop set, using methods outlined in TM 9–2330–238–14 and in paragraphs 122 through 128 of this manual. Refer to paragraphs 18 through 26, and 78 through 85 of this manual for basic procedures to be followed when the equipment is exposed to salt water. Additional requirements consist of spraying taped areas and adjacent surfaces of the van with strippable plastic material conforming to Military Specification MIL–B–12121, or Military Specification MIL–C–16555. The coating thickness should be uniform and 0.080 to 0.040 inch thick.

## Section III. LIMITED STORAGE

### 122. Inspection Before Storage

Make a complete inspection of the shop set to determine its condition. Deficiencies will be corrected prior to placement of equipment in limited storage. Technical inspection will be performed on unboxed items.

### 123. Cleaning

Prior to application of any preservative or paint, thoroughly clean all surfaces. Scrub or wipe with a clean bristle brush or cloth soaked in cleaning solvent. When possible, subject the exterior surfaces of the shop to a stream of steam with or without added cleaning compound—followed by dry steam. Wire brush, buff, sand, or scrape, if steam is not available. Immediately after cleaning, dry with dry compressed air or by use of a clean, dry, wiping cloth.

***Caution:*** **Solvents are highly destructive to natural rubber and electrical insulation, and must not be used on these materials. Protect all electrical components during cleaning. Protect sensitive components from steam cleaning by sealing openings with pressure sensitive tape, Federal Specification PPP–T–60, or by disassembling and removing components when protection cannot be otherwise accomplished.**

### 124. Complete Lubrication

Refer to paragraph 90 and 91.

### 125. Preservative Application

Coat precision machined surfaces with preservative conforming to Military Specification MIL–P–21260, Grade 2, or with preservative conforming to Military Specification MIL–C–6259, Type I, mixed with lubricating oil, in proportion of 1 part of preservative to 3 parts of lubricant.

### 126. Protection of Generator

**When this equipment is stored outside or otherwise subjected to rain or dust, it will be protected by covering with barrier materials,** Military Specification MIL–B–121, Grade A, in addition to the normal storage procedures outlined in the TM for the item (app. I).

### 127. Moistureproofing

*a.* Hang one humidity indicator, MS–20003, inside a window in such a manner as to be visible from the outside.

*b.* Place 213 units of desiccant, Military Specification MIL–B–3464, inside the shop set.

***Caution:*** **Do not place desiccant in contact with finished surfaces of tools or equipment.**

*c.* Close shop sides and rear doors.

***Caution:*** **Sides and one door should be closed and taped before desiccant is removed from air-tight containers and installed in van. It takes on moisture rapidly.**

*d.* Seal all openings with tape, Federal Specification PPP–T–60.

### 128. Inspection of Equipment in Limited Storage

When equipment has been placed in limited storage, all scheduled preventive maintenance services, including inspection will be suspended and preventive maintenance will be performed as specified herein.

*Note.* **Vans should not be opened for entry unless humdity indicator shows an unsafe condition. In that event, tape seals should be checked for leakage, desiccant replaced, and doors resealed.**

*a. Inspection Criteria.* All equipment in limited storage will be inspected for any unusual conditions, such as damage, rusting, accumulation of water, pilferage, and leakage of lubricants and fuel.

*b. Worksheet and Preventive Maintenance.* DA Form 460 and DD Form 314, will be executed on each major item of the equipment when equipment is initially placed into limited storage and every 30 days thereafter. Required maintenance will be performed promptly to insure that equipment is mechanically sound and ready for immediate use.

# CHAPTER 8

# OPERATING INSTRUCTIONS (FIELD AND DEPOT MAINTENANCE)

## Section I. SERVICE UPON RECEIPT OF EQUIPMENT

### 129. General

Shop sets, when received, are to be unloaded, uncrated, depreserved, and inspected by field and depot maintenance personnel.

### 130. Unloading and Uncrating New Equipment

*a. Unloading.* Remove shoring, blocks, tiedowns, and chocks before unloading equipment.

***Warning:*** **Remove nails and loose strapping from unloading area.**

***Caution:*** **Lift only at hoisting points provided when equipment is to be unloaded from heights above ground level (TM 9–2330–238–14).**

*b. Uncrating and Servicing New Equipment.* Uncrating and servicing procedures normally will be those outlined in paragraphs 68 through 66. Additional information required for unloading specific items is contained in the TM for the item.

*c. Depreservation.* Procedures for depreservation of new equipment will normally be as outlined in chapter 5, section I.

*d. Removal of compound and devices.* Remove rust preventive compounds, protective grease, or other coatings from new parts prior to installation. Prepare new parts by pre-soaking or by other methods as necessary. Lubrication of new parts will be as prescribed in the appropriate lubrication order.

### 131. Installation

*a. Location of handtools.* Following is a typical alphabetical listing of the location of common tools and equipment in drawers and storage cabinets provided. Cutout sections, designed to fit and hold particular tools, may be inserted in drawers. This is to protect tools, to make finding them easier, and to hold them securely during transit. Drawers and open bins are numbered from 1 to 75 chronologically, from top to bottom in rows, counterclockwise around the interior of the shop, starting at the right rear.

***Tool and Equipment Drawer Location Semitrailer Mounted, C–6, Machine Shop***

| Storage drawer No. | Nomenclature | Total |
|---|---|---|
| 1 | Adapter, Connector, stght. shape | 4 |
| 1 | Adapter, Connector: Y shape | 4 |
| 1 | Bar, Pinch | 1 |
| 11 | Bender Set, Tube, Hand | 1 |
| 1 | Blade, Hand, Hacksaw: 10 in nom lg, 18 teeth per in. | 12 |
| 1 | Blade, Hand Hacksaw: 10 in. nom lg, 24 teeth per in. | 12 |
| 1 | Blade, Hand, Hacksaw: 10 in. nom lg, 32 teeth per in. | 12 |
| 1 | Blade, Hand, Hacksaw: 12 in. nom lg, 25 teeth per in. | 24 |
| 7 | Brush, Dusting, Bench | 1 |
| 7 | Brush, File Cleaner | 1 |
| 7 | Brush, Paint | 1 |
| 7 | Brush, Paint | 4 |
| 14 | Caliper, Hermaphrodite | 1 |
| 14 | Caliper, Inside: 6 in. spg. jt. | 1 |
| 14 | Caliper, Inside: 12 in. firm jt. | 1 |
| 14 | Caliper, Inside Thread | 1 |
| 14 | Caliper, Micrometer, Inside: 2 in. to 12 in. rod type. | 1 |
| 14 | Caliper, Micrometer, Inside 3 in. spg. | 1 |
| 14 | Caliper, Micrometer, Outside | 1 |
| 14 | Caliper, Outside: 3 in spg. jt. | 1 |
| 14 | Caliper, Outside: 6 in, spg. jt. | 1 |
| 14 | Caliper, Outside: 12 In. firm jt. | 1 |
| 14 | Caliper, Outside Thread | 1 |
| 14 | Caliper, Slide | 1 |
| 14 | Caliper, Vernier | 1 |
| 14 | Caliper Set, Micrometer, Outside: 0 to 3 in. range. | 1 |

*Tool and Equipment Drawer Location Semitrailer Mounted, C-6, Machine Shop*—Continued.

| Storage drawer No. | Nomenclature | Total |
|---|---|---|
| 14 | Caliper Set, Micrometer, Outside: 0 to 6 in. range | 1 |
| 14 | Caliper Set, Micrometer, Outside: 8 in. to 12 in, range | 1 |
| 7 | Chisel, Cape, Hand: half-rd. nose style, 1/4 in. w cut | 1 |
| 7 | Chisel, Cape, Hand: reg. style hv.-duty, 1/4 in. w. cut | |
| 7 | Chisel, Cape, Hand: reg. style hv.-duty, 5/16 in. w. cut | 1 |
| | Chisel, Cold Hand | |
| | W. Cut / Lg. Overall | |
| 7 | 1/4 in. / 4 in. | 1 |
| 7 | 3/8 in. / 5 3/4 in. | 2 |
| 7 | 1/2 in. / 5 in. | 1 |
| 7 | 5/8 in. / 6 in. | 1 |
| 7 | 1 in. / 8 in. | 1 |
| 7 | Chisel, Diamond Point, Hand | 1 |
| 8 | Clamp, C | 2 |
| 8 | Clamp, Parallel, Toolmaker's 1 1/4 in. max jaw opng., 2 in. lg overall | 4 |
| 8 | Clamp, Parallel, Toolmaker's: 2 1/2 in. max jaw opng., 4 in. lg overall | 4 |
| 8 | Countersink and Drill: 3/16 in. reg. body dia., 5/64 in. drill dia. | 5 |
| 8 | Countersink and Drill: 5/16 in. reg. body dia., 1/8 in. drill dia. | 5 |
| 8 | Countersink Set | 1 |
| 8 | Cutter, Milling, Angle: 2 1/2 in. cutter dia., 1/2 in. thk., 7/8 in. hole dia. | 1 |
| 8 | Cutter, Milling, Angle: 2 3/4 in. cutter dia., 1/2 in. thk., 1 in. hole dia. | 1 |
| 8 | Cutter, Milling, Angle: 2 1/2 in. cutter dia., 1/2 in. thk., 7/8 in. hole dia. | |
| 8 | Cutter, Milling, Angle: 2 3/4 in. cutter dia., 1/2 in. thk., 1 in. hole dia. | 1 |
| 8 | Cutter, Milling, Angle: 2 1/2 in. cutter dia., 1/2 in. thk., 7/8 in. hole dia. | 1 |
| 8 | Cutter, Milling, Convex: 1/8 in. circle dia. | 1 |
| 8 | Cutter, Milling, Convex: 1/4 in. circle dia. | 1 |
| 8 | Cutter, Milling, Convex: 3/8 in. circle dia. | 1 |
| 8 | Cutter, Milling, Convex: 1/2 in. circle dia. | 2 |
| | Cutter, Milling, End | |
| | Dia. Cutter / Lg. Overall | |
| 8 | 1/4 in. / 2 13/16 in. | 1 |
| 8 | 3/8 in. / 2 15/16 in. | 1 |
| 8 | 1/2 in. / 3 1/8 in. | 1 |
| 8 | 3/4 in. / 5 1/4 in. | 1 |
| 8 | 1 in. / 5 5/8 in. | 1 |
| 8 | 1 in. / 5 5/8 in. | 1 |
| 8 | 1/4 in. / 2 13/16 in. | 2 |
| 8 | 3/8 in. / 2 15/16 in. | 1 |
| 8 | 1/2 in. / 3 1/8 in. | 1 |
| 8 | 3/4 in. / 5 1/4 in. | 1 |
| 8 | 3/8 in. / 2 1/2 in. | 1 |
| 8 | 1/2 in. / 3 1/4 in. | 1 |

*Tool and Equipment Drawer Location Semitrailer Mounted, C-6, Machine Shop*—Continued.

| Storage drawer No. | Nomenclature | Total |
|---|---|---|
| | Dia. Cutter / Lg. Overall | |
| 8 | 5/8 in. / 3 3/4 in. | 1 |
| 8 | 3/4 in. / 3 3/4 in. | 1 |
| 8 | Cutter, Milling, Metal Slitting: 2 1/2 in. od., 1/16 in. w. face | 1 |
| 8 | Cutter, Milling, Metal Slitting: 2 1/2 in. od., 1/8 in. w. face. | 1 |
| 8 | Cutter, Milling, Metal Slitting: 4 in. od., 1/16 in. w. face. | 2 |
| 8 | Cutter, Milling, Metal Slitting: 5 in. od., 1/8 in. w. face. | 2 |
| 8 | Cutter, Milling, Metal Slitting: 5 in. od., 3/16 in. w. face. | 2 |
| 8 | Cutter, Milling, Plain | 1 |
| | Cutter, Milling Side | |
| | OD. / W. Face | |
| 8 | 2 1/2 in. / 1/4 in. | 1 |
| 8 | 2 1/2 in. / 1/2 in. | 1 |
| 8 | 3 in. / 1/4 in. | 1 |
| 8 | 3 in. / 1/2 in. | 1 |
| | Cutter, Milling, T-Slot | |
| | Bolt Size / Dia. Cutter | |
| 8 | 1/4 in. / 9/16 in. | 1 |
| 8 | 3/8 in. / 25/32 in. | 1 |
| 8 | 1/2 in. / 31/32 in. | 1 |
| | Cutter, Milling, Woodruff Keyslot | |
| | Dia. / W. Face / Lg. Overall | |
| 8 | 1/2 in. / 1/16 in. / 2 1/16 in. | 2 |
| 8 | 1/2 in. / 3/32 in. / 2 3/32 in. | 1 |
| 8 | 1/2 in. / 1/8 in. / 2 1/8 in. | 1 |
| 8 | 5/8 in. / 1/8 in. / 2 1/8 in. | 1 |
| 8 | 3/4 in. / 1/8 in. / 2 1/8 in. | 1 |
| 8 | 3/4 in. / 3/16 in. / 2 3/16 in. | 1 |
| 8 | 7/8 in. / 5/32 in. / 2 5/32 in. | 1 |
| 8 | 7/8 in. / 1/4 in. / 2 1/4 in. | 1 |
| | Cutter, Milling, Woodruff Keyslot | |
| | Dia. / W. Face / Lg. Overall | |
| 8 | 1 in. / 3/16 in. / 2 3/16 in. | 1 |
| 8 | 1 in. / 5/16 in. / 2 5/16 in. | 1 |
| 8 | 1 1/8 in. / 3/16 in. / 2 3/16 in. | 1 |
| 8 | 1 1/4 in. / 1/4 in. / 2 1/4 in. | 1 |
| 8 | 1 1/4 in. / 3/8 in. / 2 3/8 in. | 1 |
| 8 | 1 3/8 in. / 5/16 in. / 2 5/16 in. | 1 |
| 8 | 1 1/2 in. / 1/4 in. / 2 1/4 in. | 1 |
| | Cutter Bit, Tool Holder | |
| | W. / Thk. / Lg. | |
| 8 | 1/2 in. / 3/32 in. / 4 1/2 in. | 12 |
| 8 | 1/2 in. / 3/32 in. / 4 1/2 in. | 12 |
| 8 | 1/4 in. / 1/4 in. / 2 1/2 in. | 24 |
| 8 | 3/16 in. / 3/16 in. / 1 1/2 in. | 12 |
| 8 | Cutter Set, Milling, End | 1 |
| 8 | Die Set, Metal Stamping, Hand | 1 |
| 1 | Dividers, Mechanic's: 3 in. lg. rect. legs. | 1 |
| 1 | Dividers, Mechanic's: 10 in. lg. rect. legs. | 1 |
| 1 | Dresser, Abrasive Wheel, Hand | 1 |
| 9 | Drift, Drill: plain type No. 1 Morse taper socket. | 1 |

*Tool and Equipment Drawer Location Semitrailer Mounted, C–6, Machine Shop—Continued.*

| Storage drawer No. | Nomenclature | Total |
|---|---|---|
| 9 | Drift, Drill: plain type No. 2 Morse taper socket. | 1 |
| 9 | Driftpin: 12 in. largest dia., 4 in. lg. | 1 |
| 9 | Driftpin: 3/4 in. largest dia., 6 in. lg. | 2 |
| 11 | Drill, Electric Portable: 1/4 in. cap. | 1 |
| 11 | Drill, Electric, Portable: 1/2 in. cap. | 1 |
| | Drill, Twist | |
| 9 | 1 1/16 in. | 1 |
| 9 | 1 1/32 in. | 1 |
| 9 | 1 3/32 in. | 1 |
| 9 | 1 1/8 in. | 1 |
| 9 | 1 5/32 in. | 1 |
| 9 | 1 3/16 in. | 1 |
| 9 | 1 7/32 in. | 1 |
| 9 | 1 1/4 in. | 1 |
| 9 | 1 9/32 in. | 1 |
| 9 | 1 5/16 in. | 1 |
| 9 | 1 11/32 in. | 1 |
| 9 | 1 3/8 in. | 1 |
| 9 | 1 13/32 in. | 1 |
| 9 | 1 7/16 in. | 1 |
| 9 | 1 15/32 in. | 1 |
| 9 | 1 1/2 in. | 1 |
| | Drill Set, Twist | |
| 9 | Fractional Series. 33/64 in. to 3/4 in. | 1 |
| 9 | Fractional Series. 49/64 in. to 1 in. | 1 |
| 9 | Fractional Series. 1/16 in. to 1/2 in. | 1 |
| 9 | Letter Series, A to Z size range | 1 |
| 9 | Number Series, 1 to 60 size range | 1 |
| 9 | Extractor Set, Screw | 1 |
| | File Hand: American Pattern: | |
| 10 | Fl. type, dble. cut, bastard faces, 8 in. heel to pt. | 2 |
| 10 | Fl. type, dble. cut, bastard faces, 12 in. heel to pt. | 1 |
| 10 | Fl type, dble, cut, sec-cut, faces, 10 in. heel to pt. | 2 |
| 10 | Half-rd. type, dble. cut bastard faces, 6 in, heel to pt. | 1 |
| 10 | Half-rd. type, dble. cut, bastard faces, 10 heel to pt. | 1 |
| 10 | Half-rd. type, dble. cut faces sec-cut faces, 6 in. heel to pt. | 2 |
| 10 | Hand type, dble. cut, sm. faces, 6 in. heel to pt. | 2 |
| 10 | Hand type, dble. cut, sm. faces, 10 in. heel to pt. | 1 |
| 10 | Mill type, sgle. cut, bastard faces, 6 in, heel to pt. | 1 |
| 10 | Mill type, sgle. cut, bastard faces, 8 in, heel to pt. | 1 |
| 10 | Mill type, sgle. cut, bastard faces, 12 in. heel to pt. | 1 |
| 10 | Mill type, sgle. cut, sm, faces, 8 in. heel to pt. | 2 |

*Tool and Equipment Drawer Location Semitrailer Mounted, C–6, Machine Shop—Continued.*

| Storage drawer No. | Nomenclature | Total |
|---|---|---|
| 10 | Mill type, sgle. cut, sm. faces, 10 in. heel to pt. | 1 |
| 10 | Mill type, sgle. cut, sm. faces, 12 in. heel to pt. | 1 |
| 10 | Pillar type, dble. cut, bastard faces, 10 in. heel to pt. | 1 |
| 10 | Pillar type, dble. cut, sec-cut faces, 10 in. heel to pt. | 1 |
| 10 | Pillar type, dble. cut, sm. faces, 8 in. heel to pt. | 1 |
| 10 | Rd. type, dble. cut, bastard faces, 6 in, heel to pt. | 1 |
| 10 | Rd. type, dble. cut, bastard faces, 8 in. heel to pt. | 1 |
| 10 | Rd. type, dble. cut, bastard faces, 12 in. heel to pt. | 1 |
| 10 | Rd. type, sgle. cut, sm. cut face, 8 in. heel to pt. | 1 |
| 10 | Sq. type, dble. cut, bastard faces, 6 in. heel to pt. | 1 |
| 10 | Sq. type, dble. cut, bastard faces, 14 in. heel to pt. | 1 |
| 10 | Taper, reg type, sgle. cut, handsaw faces, 6 in. heel to pt. | 1 |
| 10 | Taper, reg. type, sgle. cut, handsaw faces, 8 in. heel to pt. | 1 |
| 10 | Taper, slim type, sgle. cut, handsaw faces, 4 in. heel to pt. | 1 |
| 10 | Taper, slim type, sgle. cut, handsaw faces, 6 in. heel to pt. | 1 |
| 10 | File Set, Hand | 1 |
| 15 | Frame, Coping Saw | 1 |
| 15 | Frame, Hand Hacksaw | 1 |
| 15 | Gage, Center | 1 |
| 15 | Gage, Depth, Micrometer | 1 |
| 15 | Gage, Depth, Rule | 1 |
| 15 | Gage, Screw Pitch: two groups of blades encased, 17 blades | 1 |
| 15 | Gage, Screw Pitch: two groups of blades encased, 80 blades. | 1 |
| 15 | Gage, Surface | 1 |
| 15 | Gage, Thickness | 1 |
| 15 | Gage Set, Telescoping | 1 |
| 15 | Goggles, Industrial | 5 |
| | Hammer Hand: | |
| 16 | Blacksmith's cross peen, 3 lb. nom. hd. wt. | 1 |
| 16 | Carpenter's nailing, 1 lb. nom. hd. wt. | 1 |
| 16 | Machinist's ball peen, 1 lb. nom. hd. wt. | 1 |
| 16 | Machinist's ball peen, 2 lb. nom. hd. wt. | 1 |
| 16 | Machinist's ball peen, 9 oz. nom. hd. wt. | 1 |
| 16 | Machinist's ball peen, 20 oz. nom. hd. wt. | 1 |
| 16 | Screw-in inserted plastic face, 1 1/4 oz. nom. total hd. wt. | 1 |
| 16 | Screw-in inserted plastic face, 2 oz. nom. total hd. wt. | 1 |

*Tool and Equipment Drawer Location Semitrailer Mounted, C-6, Machine Shop—Continued.*

| Storage drawer No. | Nomenclature | Total |
|---|---|---|
| 10 | Handle, File, Wood: 4 in. nom. lg. overall. | 4 |
| 10 | Handle, File, Wood: 4 1/2 in. nom. lg. overall. | 4 |
| 10 | Handle, Soldering Iron, Wood | 2 |
| 10 | Holder, Drill: No. 3 Morse taper | 4 |
| 10 | Holder, Drill: No. 4 Morse taper | 1 |
| 10 | Holder, Threading and Tapping Tool: No. 2 Morse guide, bx. taper, grip slide type. | 1 |
| 10 | Holder, Threading and Tapping Tool: No. 3 Morse guide bar taper, grip slide type. | 1 |
| 16 | Indicator, Dial | 1 |
| 16 | Indicator, Scale | 1 |
| 16 | Key Set, Socket Head Screw | 1 |
| 25 | Light, Extension | 2 |
| 23 | Oiler, Hand | 3 |
| 25 | Parallel: 6 in. nom. lg., 3/8 in. nom. w., 3/4 in. nom. h. | 1 |
| 20 | Parrallel: 6 in. nom. lg., 1/4 in. nom. w., 3/4 in. nom. h. | 1 |
| 20 | Pliers: lineman's w/side cutter, 8 in. nom. size. | 1 |
| 20 | Pliers: lg. rd. nose w/cutter, 6 in. nom. size. | 1 |
| 20 | Pliers: parallel action jaws w/cutter, 6 1/2 in. nom. size. | 1 |
| 20 | Pliers, Diagonal Cutting | 2 |
| 20 | Pliers, Slip Joint: 6 in. nom. size | 1 |
| 20 | Pliers, Slip Joint: 8 in. nom. size | 2 |
| 20 | Punch, Center, Solid | 2 |
| 20 | Punch, Drift | 1 |
| 20 | Punch, Drive Pin: S, rd. stght., w/br. tip, 3/4 in. dia, 10 in. lg. | 1 |
| 20 | Punch, Drive Pin: tpd. type | 1 |
| 20 | Punch Set, Drive Pin | 1 |
| 21 | Reamer Set, Hand: HSS, adj. stght. rd. shk. | 1 |
| 21 | Reamer Set, Hand: HSS, taper pin, spiral, | 1 |
| 21 | Reamer Set, Machine: HSS, jobbers, taper shk. | 1 |
| 21 | Reamer Set, Machine: Morse taper shk. | 1 |
| 22 | Rule, Steel, Machinist's: 6 in. lg., 1/2 in. w., 1/64 in. thk. | 2 |
| 22 | Rule, Steel, Machinist's" 6 in. lg., 11/16 in. min. to 3/4 in. max. w., 0.031 in. min. to 0.052 in. max. thk. | 1 |
| 22 | Rule, Steel, Machinist's: 12 in. lg., 1 in. w., 3/64 in. thk | 1 |
| 22 | Saw Set, Hole | 1 |
| | Screwdriver, Flat Tip | |
| | Length | |
| 17 | 12 in. | 1 |
| 17 | 1 1/2 in. | 2 |
| 17 | 4 in. | 2 |
| 17 | 4 in. | 2 |
| 17 | 6 in. | 1 |
| 17 | 12 in. | 1 |
| 17 | 6 in. | 2 |

*Tool and Equipment Drawer Location Semitrailer Mounted, C-6, Machine Shop—Continued.*

| Storage drawer No. | Nomenclature | Total |
|---|---|---|
| | Length | |
| 17 | 10 in. | 1 |
| 17 | 5 in. | 1 |
| 17 | Screwdriver, Offset | 1 |
| 17 | Scriber, Machinist's | 1 |
| 18 | Shears, Metal Cutting, Hand | 1 |
| | Socket, Taper Shank Tool: | |
| | Lg. overall | |
| 18 | 3 5/8 in. | 1 |
| 18 | 3-7/8 in. | 1 |
| 18 | 4 3/8 in. | 1 |
| 18 | 4 7/8 in. | 1 |
| 18 | 4 7/8 in. | 1 |
| 18 | 5 3/8 in. | 1 |
| 18 | Soldering Iron, Nonelectric | 2 |
| 23 | Square, Combination: 12 in. lg. | 2 |
| | Stand, Twist Drill: | |
| 23 | Wood, fractional series 1 1/32 in., 1 1/16 in., 1 3/32 in., 1 1/8 in. & 1 3/16 in. drills. | 1 |
| 23 | Wood, fractional series 1 7/32 in., 1 1/4 in., 1 9/32 in., 1 5/16 in., & 1 11/32 in. drills. | 1 |
| 23 | Wood fractional series 1 3/8 in., 1 13/32 in, 1 7/16 in., 1 15/32 in., & 1 1/2 in. drills. | 1 |
| 23 | Stone, Sharpening: 7 in. lg., 2 in. w., 1 in. thk. | 1 |
| 23 | Stone, Sharpening: 8 in. lg., 2 in. w., 1 in. thk. | 1 |
| 23 | Stone, Sharpening: 4 in. lg., 3/8 in. w., 3/8 in. thk. | 1 |
| 22 | Tachometer, Mechanical, Hand Held | 1 |
| 22 | Tape Measuring | 1 |
| | Wrench, Open End, Adjustable | |
| | Lg. overall | |
| 24 | 8 in. | 1 |
| 24 | 10 in. | 2 |
| 24 | 12 in. | 1 |
| 24 | 15 in. | 1 |
| 24 | Wrench, Open End, Fixed: 5 1/2 in. nom. lg. overall. | 1 |
| 24 | Wrench, Open End, Fixed: 8 3/8 in. nom. lg. overall. | 1 |
| 24 | Wrench, Pipe: 10 in. nom. lg. overall | 1 |
| 24 | Wrench, Pipe: 18 in. nom. lg. overall | 1 |
| 24 | Wrench, Tap and Reamer, Adjustable: 0 to 1/4 in. bolt tap holding cap. | 1 |
| 24 | Wrench, Tap and Reamer, Adjustable: 1/4 in. to 1 1/8 in. bolt tap holding cap. | 1 |
| 24 | Wrench Set, Socket: 1/4 in. sq. dr. | 1 |
| 24 | Wrench Set, Socket: 1/2 in. sq. dr. | 1 |

*b. Location of Mounted Equipment.* In some instances, tools, equipment, or instruments are mounted on walls, floor, or benches of the shop. These items are either too large for cabinet storage, or their use makes cabinet

storage impractical. Refer to figure 16 and 17 for floor plan of shop set.

*c. Pothead Assembly.* The pothead assembly is mounted to the outside front wall of the forward storage compartment (fig. 16), with brackets and straps (figures 26 and 27). Strap and loops for mounting other equipment are shown in figures 28 through 32.

*d. Generator, 10 kw.* The generator is mounted on the forward platform of the shop. Location and mounting details are shown in figure 33 and 34.

*e. Lathe, 10 Inch Swing.* The lathe is mounted at the forward end of the shop interior (fig. 16). The lathe control box is mounted underneath the lathe and the tool chest for the lathe accessories is mounted at the right forward interior corner of the shop (fig. 17). The mounting plate for the lathe is shown in fugure 35; mounting details for the control box are shown in figures 30, 36, and 37; and mounting details for the tool chest are shown in figures 38, through 41.

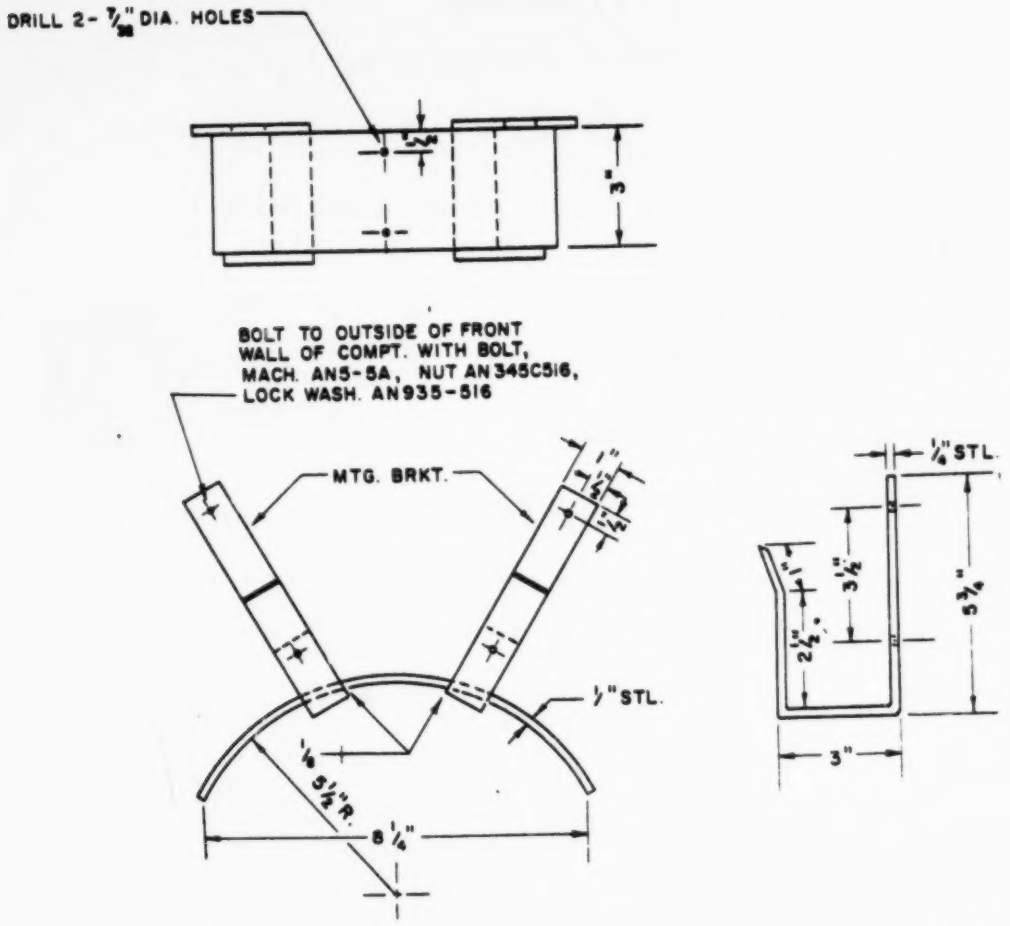
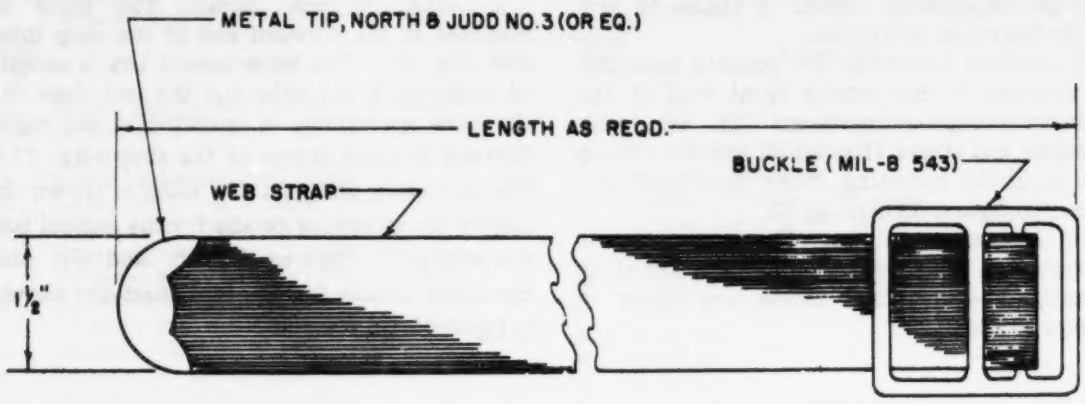
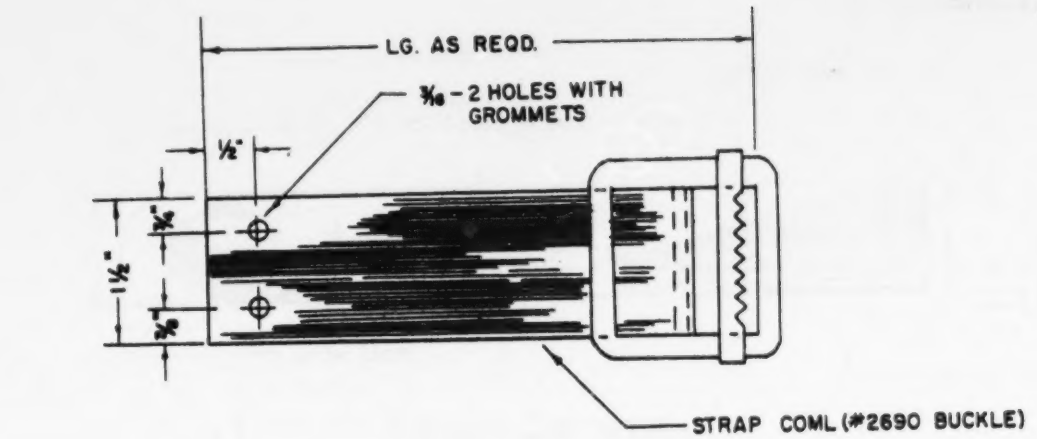



*Figure 26. Details pothead assembly mounting bracket.*




TIE DOWN STRAP

*Figure 27. Strap, continuous type.*



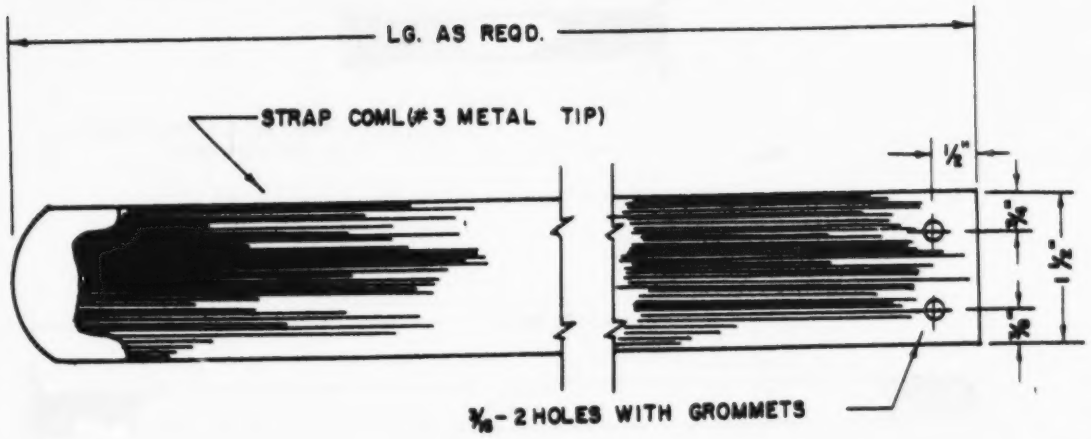




*Figure 88. Strap, bolted type.*

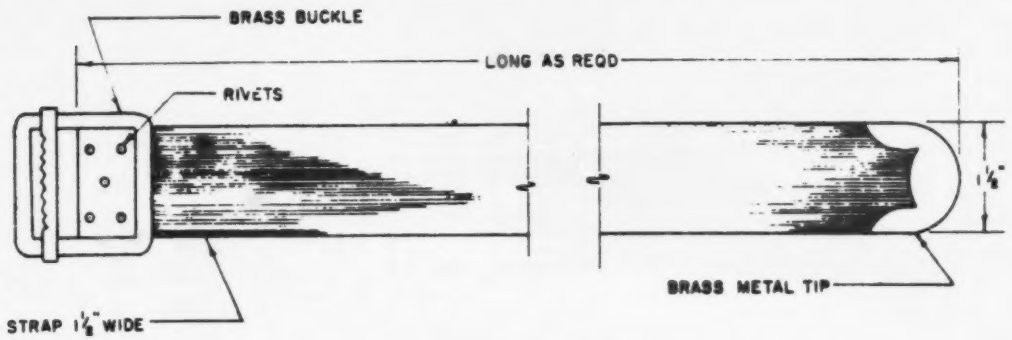
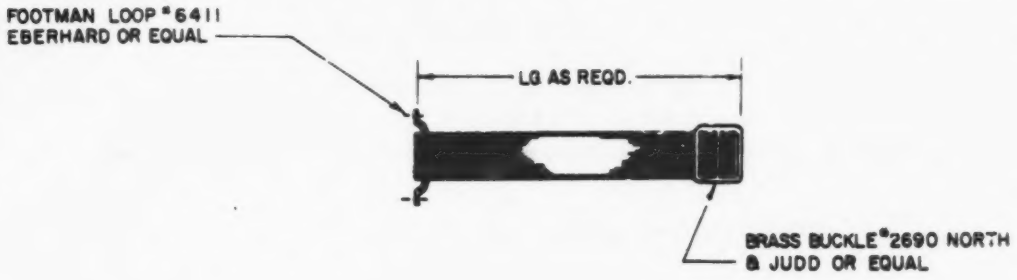



*Figure 29. Strap, riveted type.*



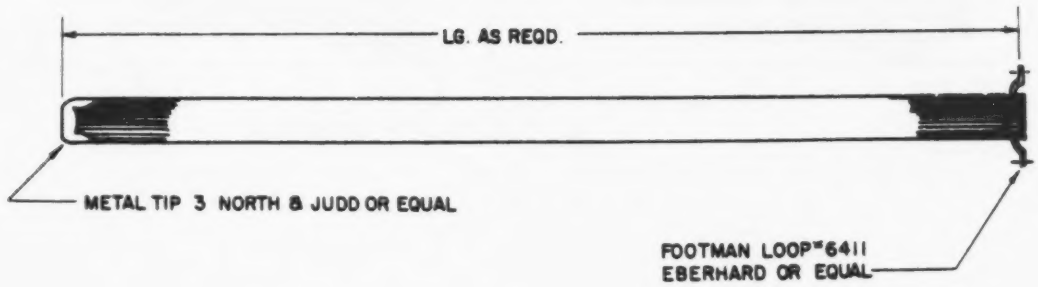




*Figure 30. Strap, sewn type.*

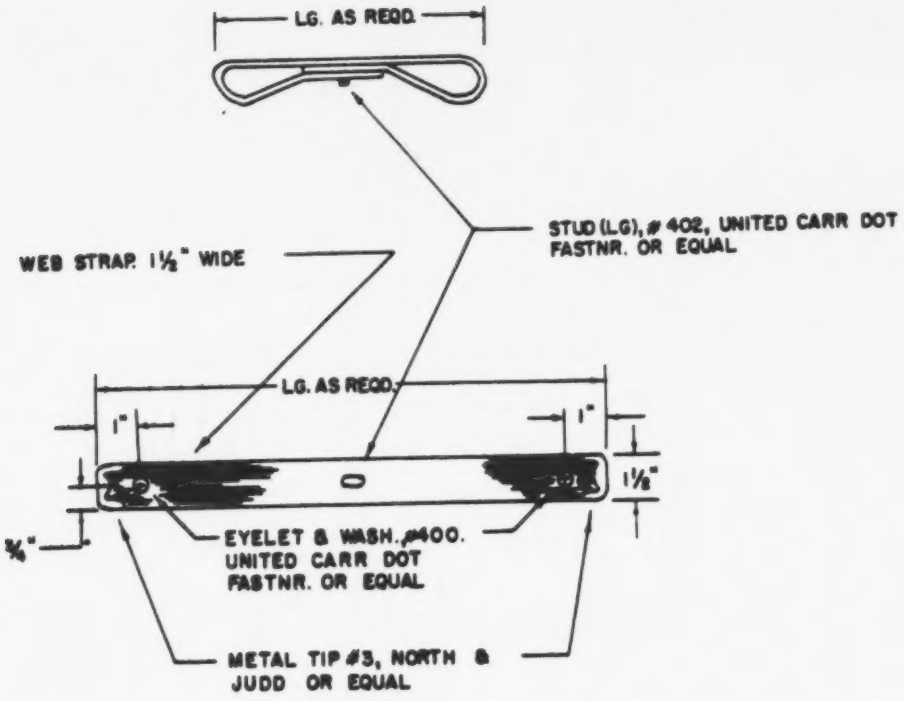

LG. AS REQD.
STUD (LG), # 402, UNITED CARR DOT FASTNR. OR EQUAL
WEB STRAP 1½" WIDE
LG. AS REQD.
1"
1"
1½"
¾"
EYELET & WASH. #400. UNITED CARR DOT FASTNR. OR EQUAL
METAL TIP #3, NORTH & JUDD OR EQUAL

*Figure 31. Strap, loop type.*

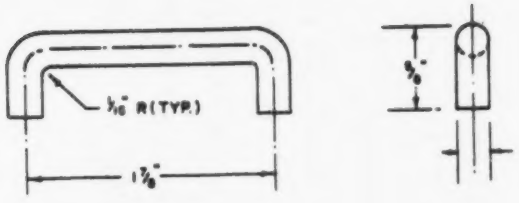



*Figure 32. Strap loop.*

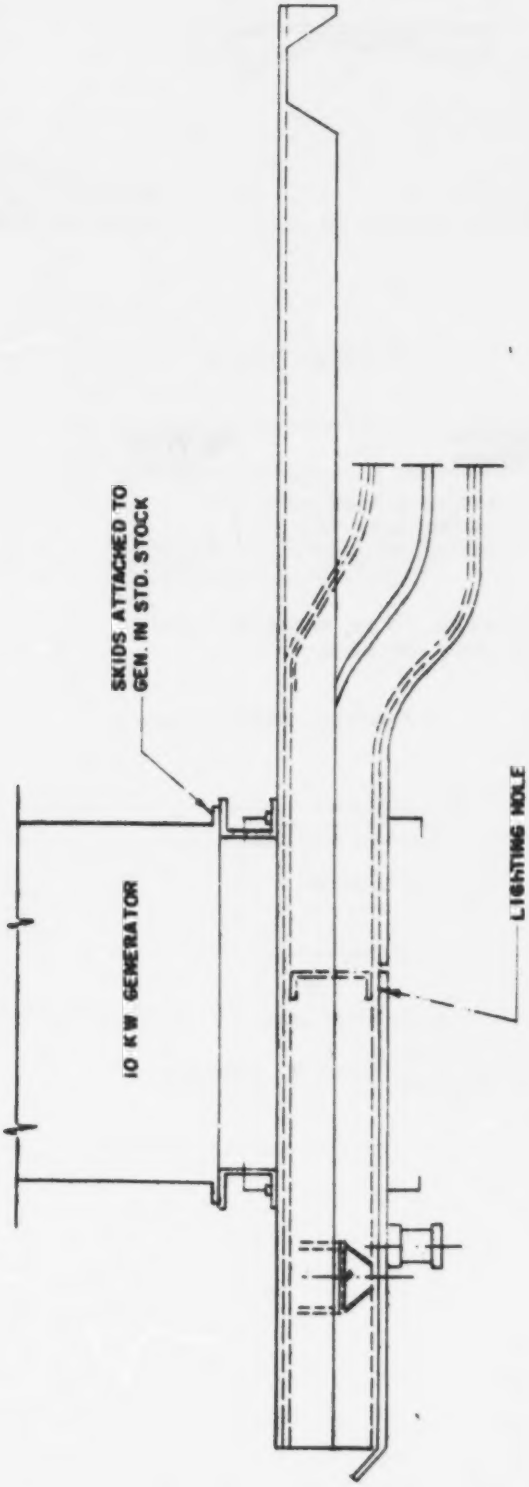



*Figure 33. Generator Mounting, plan view.*

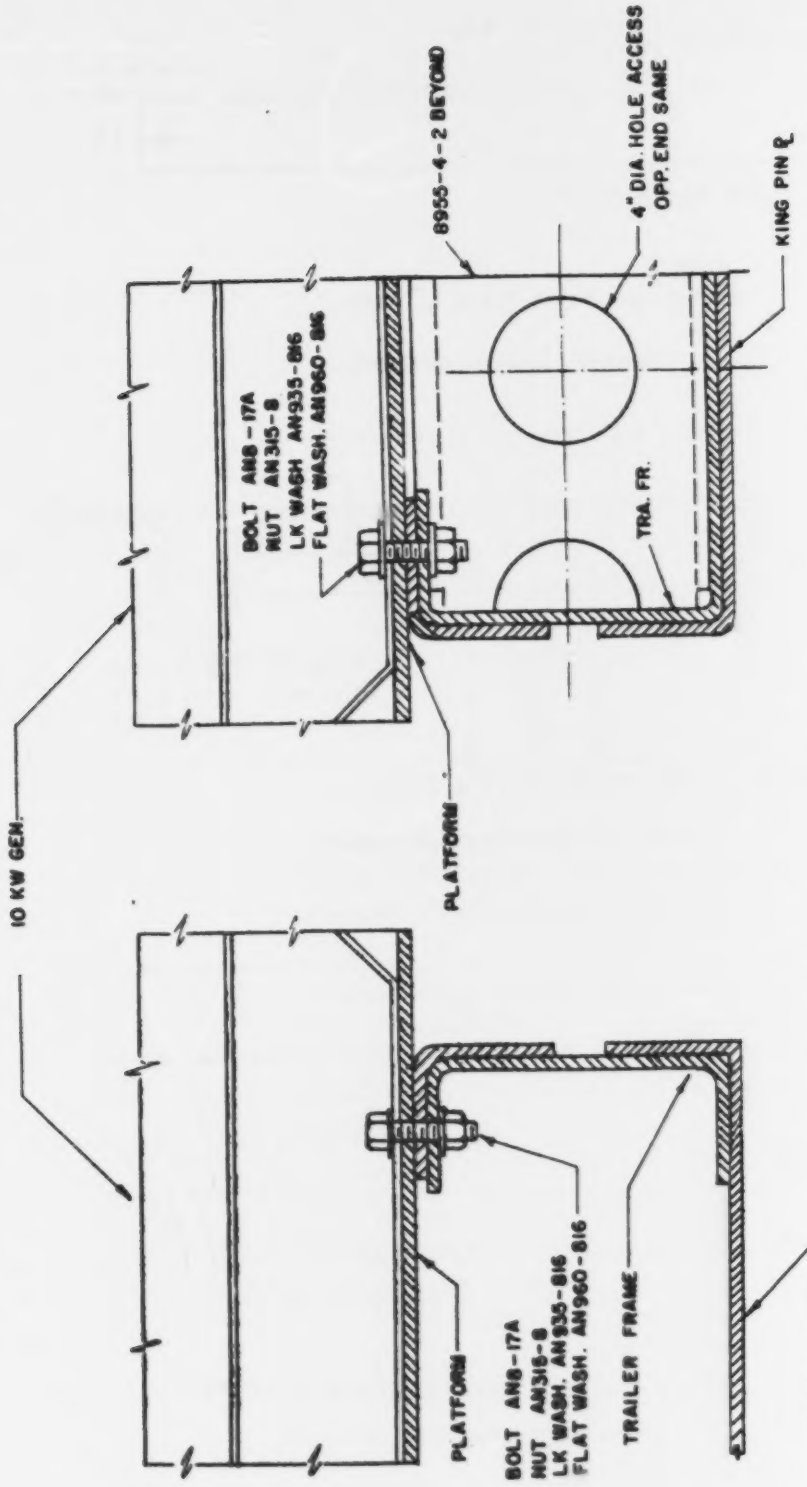
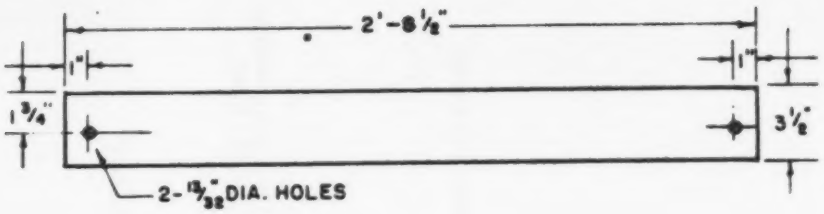
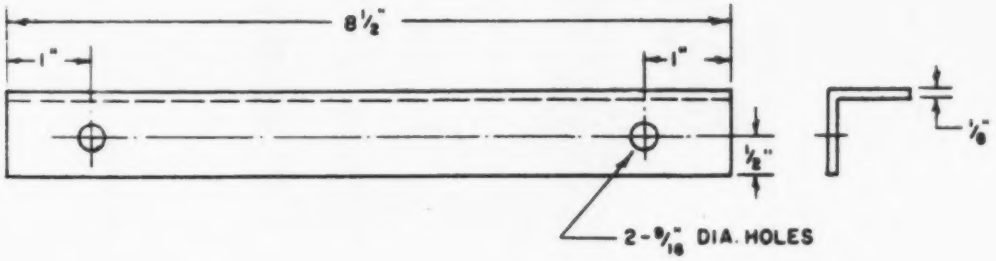



*Figure 31. Generator mounting, details.*




LATHE MOUNTING PLATE, 1/2" STEEL

*Figure 35. Lathe mounting plate.*




BOX - CONTROL GUIDE ANGLES - 1" X 1" X 1/8" STEEL

*Figure 36. Control box guide angles.*

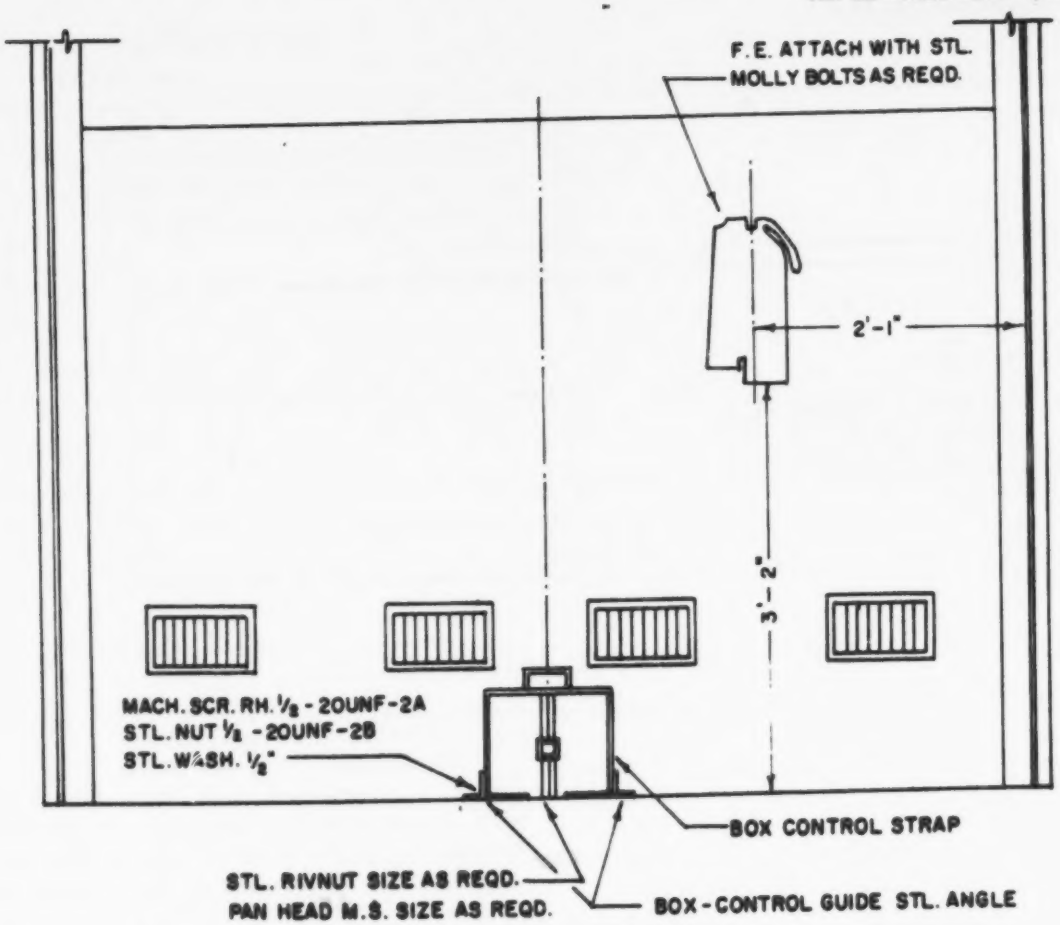
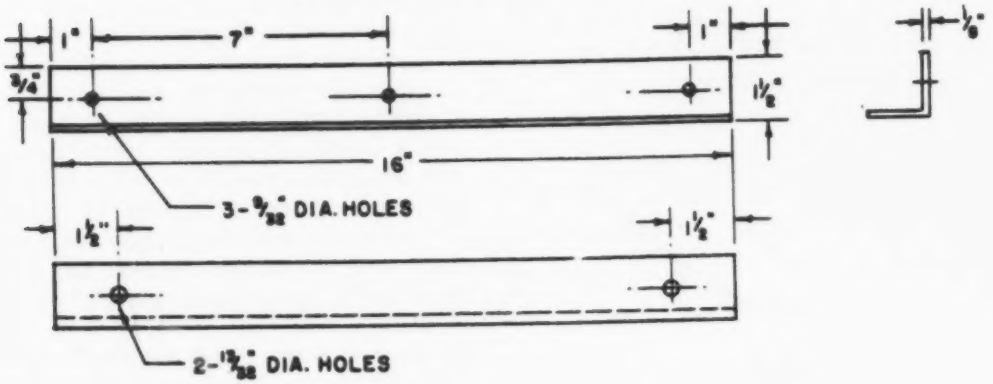
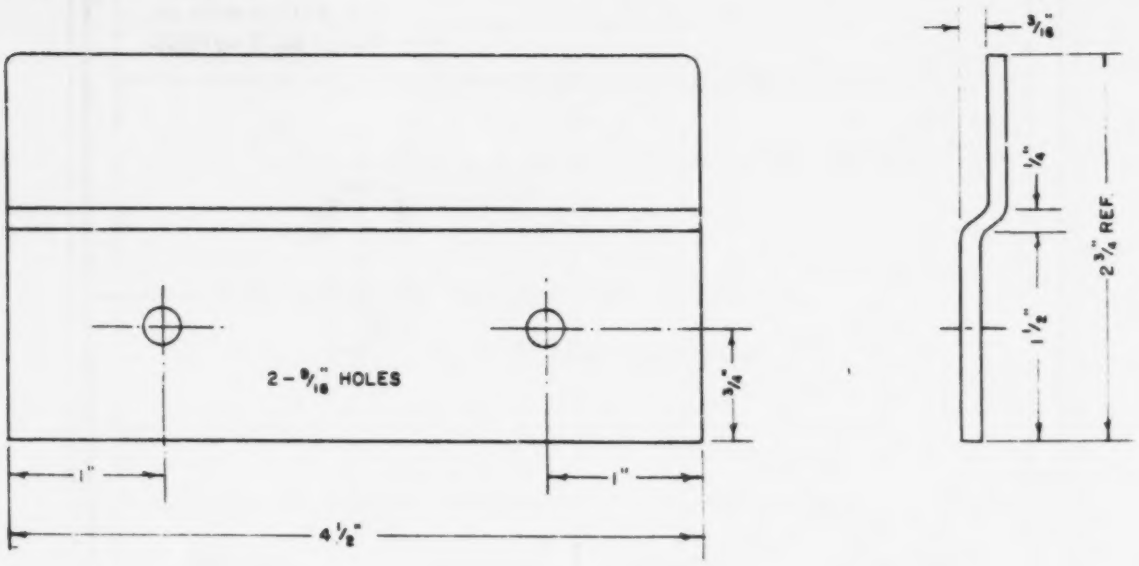



*Figure 37. Typical wall mounted equipment.*



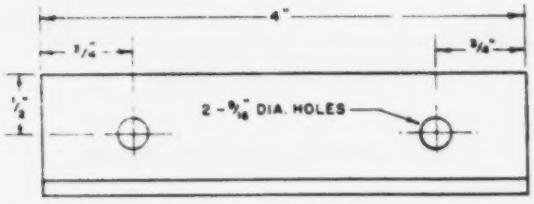

REAR CHEST MOUNTING ANGLE, 1 1/2" X 1 1/2" X 1/8" STEEL

*Figure 38. Chest mounting angle, rear.*




LATHE ATTACHMENT CHEST GUIDE, 1/8" STEEL PLATE

*Figure 39. Chest mounting, guide.*




FR. CHEST MOUNTING ANGLE, 1"X1"X1/8" STEEL

*Figure 40. Chest mounting angle, front.*

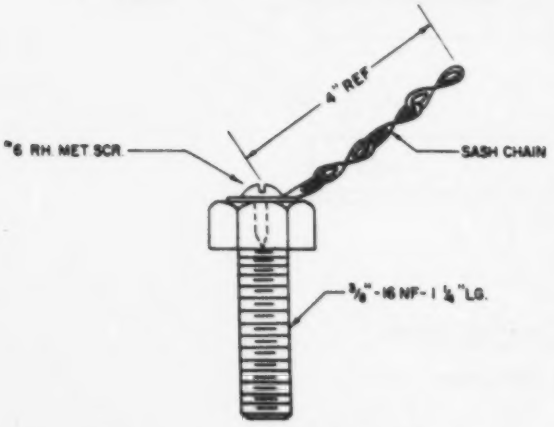



*Figure 41. Chest mounting, lock bolt.*

*f. Worktables.* Two worktables (figs. 16 and 17), are mounted on the right side of the shop. Bench mounting channels are installed between the tables to secure them to the floor. Details of the channel are shown in figure 42.

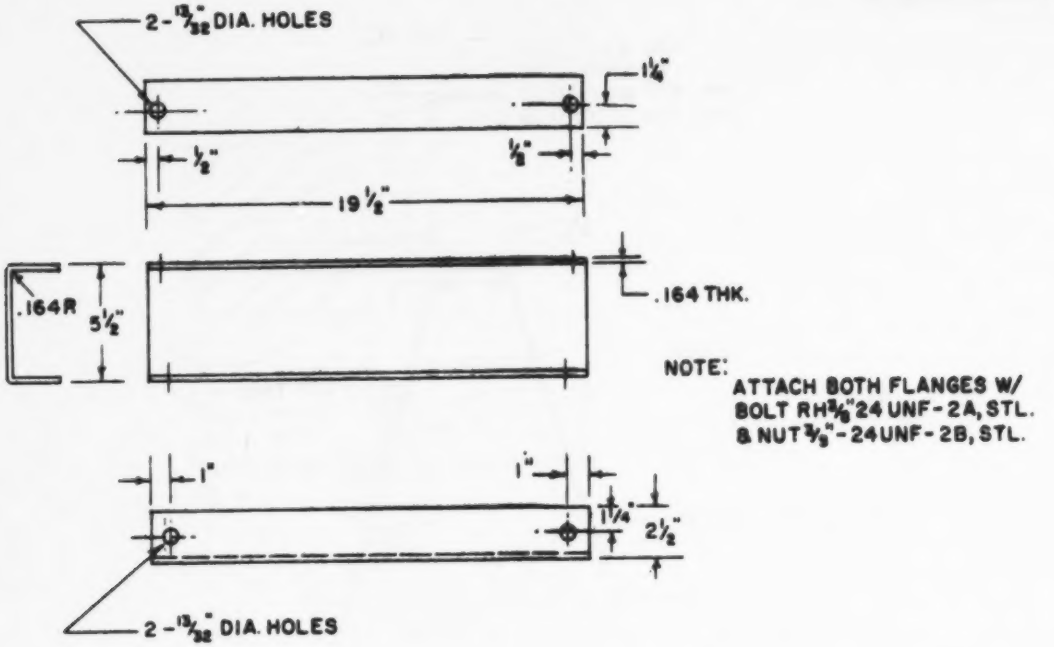
*g. Surface Plate.* The surface plate is stored beneath the rear worktable (fig. 17). The holder and straps for securing the surface plate are shown in figures 30 and 43.

*h. Bench Mounted Equipment.* The machinist's vise, horizontal shaper, armature undercutter, chain vise, upright drilling machine, utility bench grinder, and 10-ton arbor press are bench mounted (fig. 16). Mounting details are shown in figures 44 through 51.

*i. Bench Tops.* Bench tops are mounted on the top of the storage cabinets. Lag screws are installed to mount the bench tops as shown in figure 52. Additional security of the bench top is obtained when bench mounted equipment is installed as the mounting bolts for the equipment pass through the bench top and the storage cabinet top (figs. 44–48).

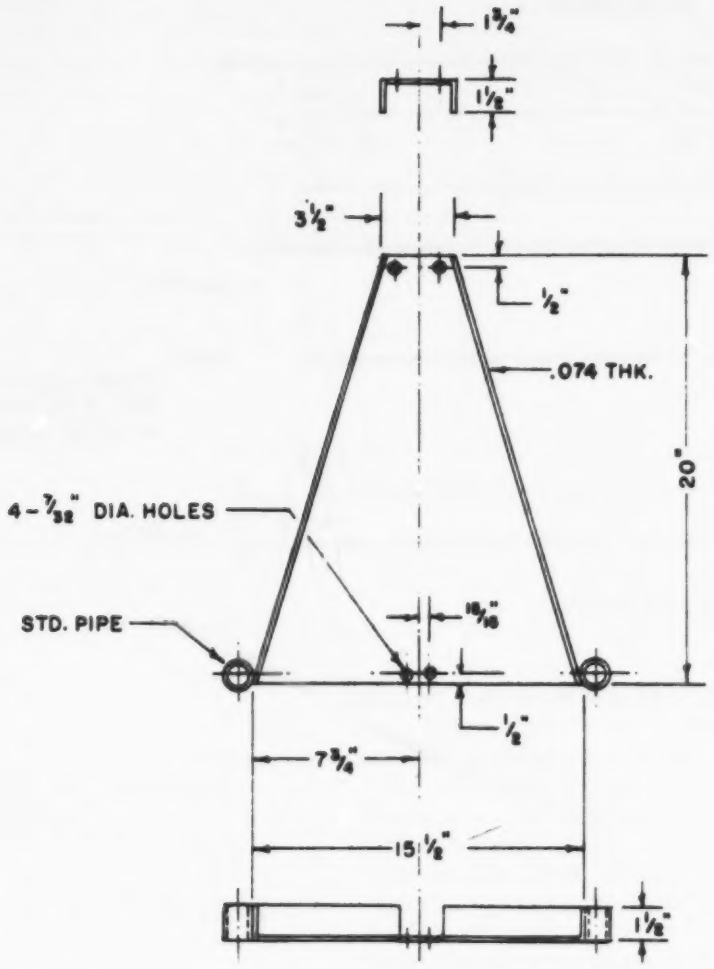


GPO 833-249-6




STEEL BENCH MOUNTING CHANNEL

*Figure 42. Bench mounting channel.*




STEEL SURFACE PL. HOLDER

*Figure 43. Surface plate holder.*

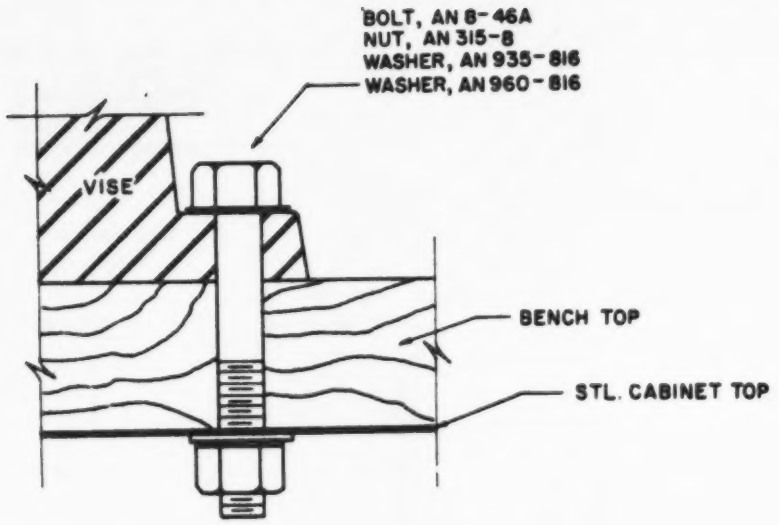



*Figure 44. Typical mounting, machinist's vise.*

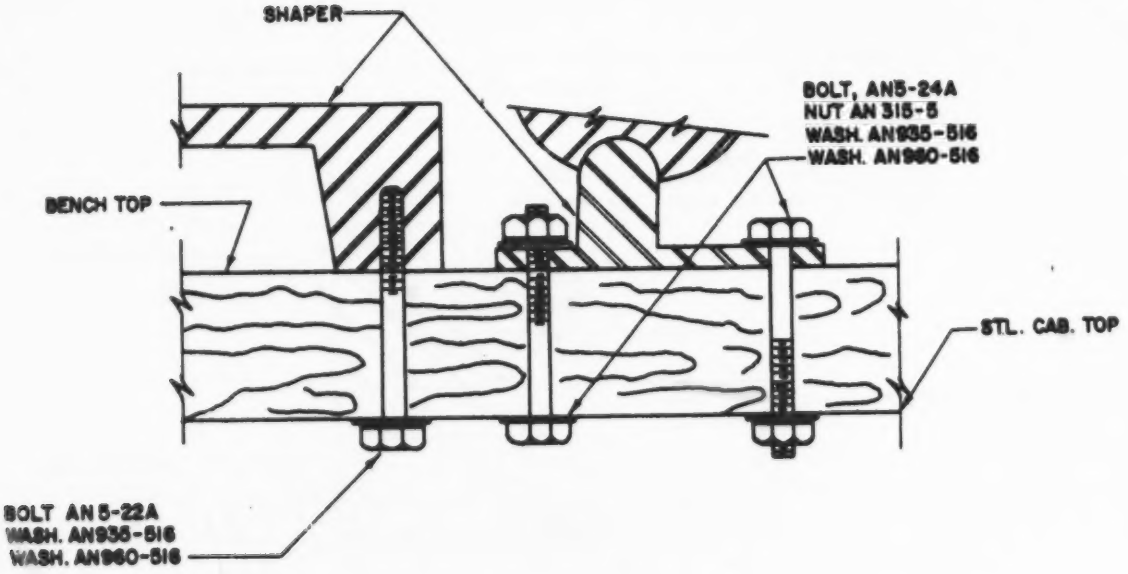



*Figure 45. Typical shaper mounting.*

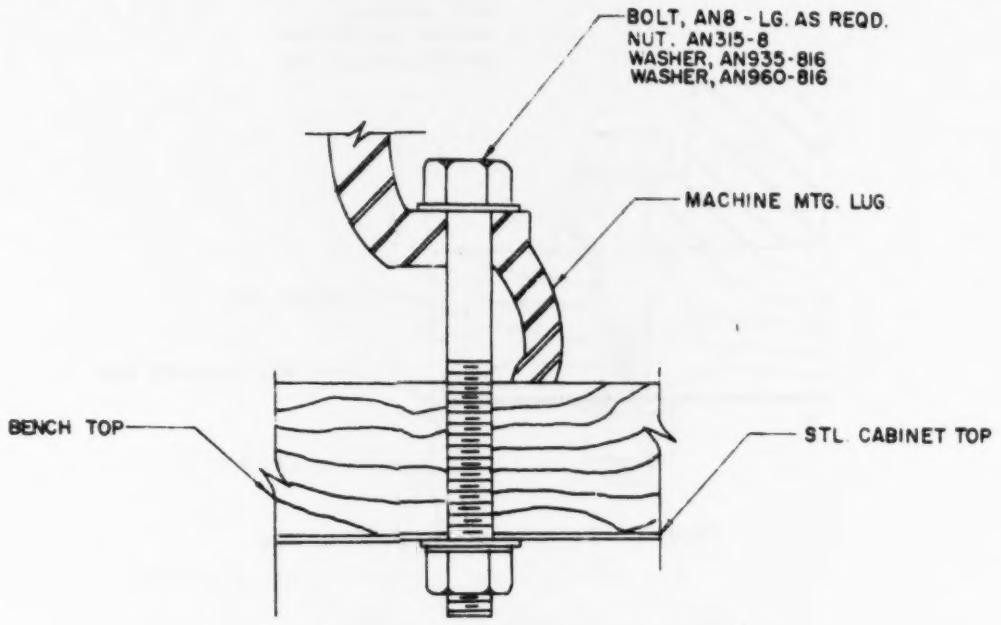



*Figure 46. Typical mounting, armature undercutter, chain vise, and upright drilling machine.*

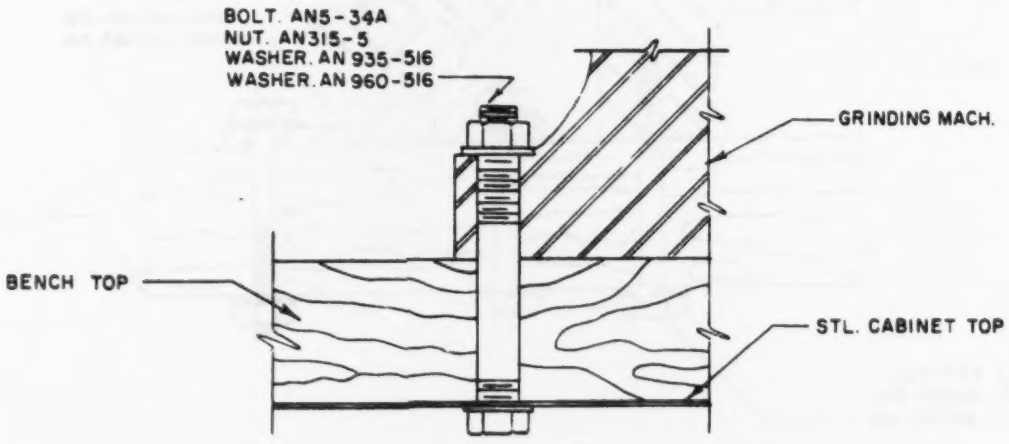



*Figure 47 Typical Bench Mounting, Utility Grinding Machine.*

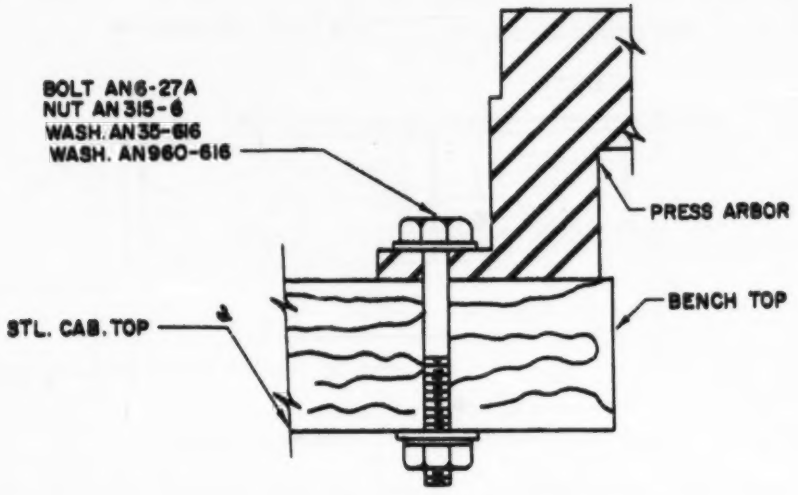
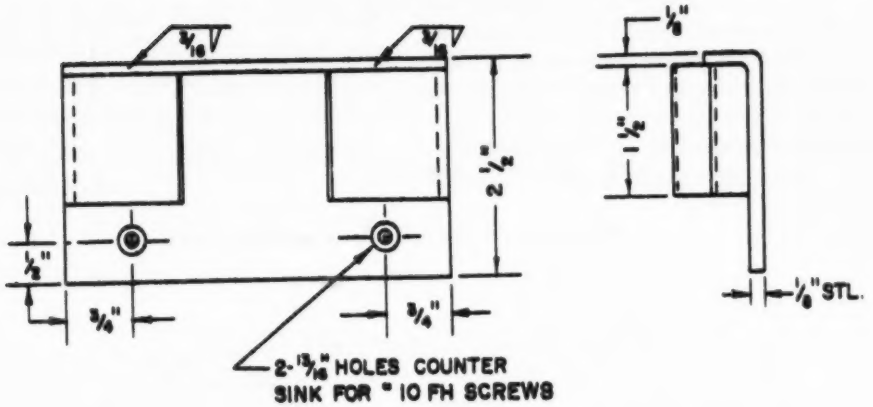
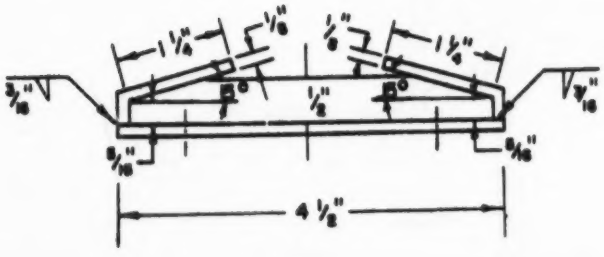


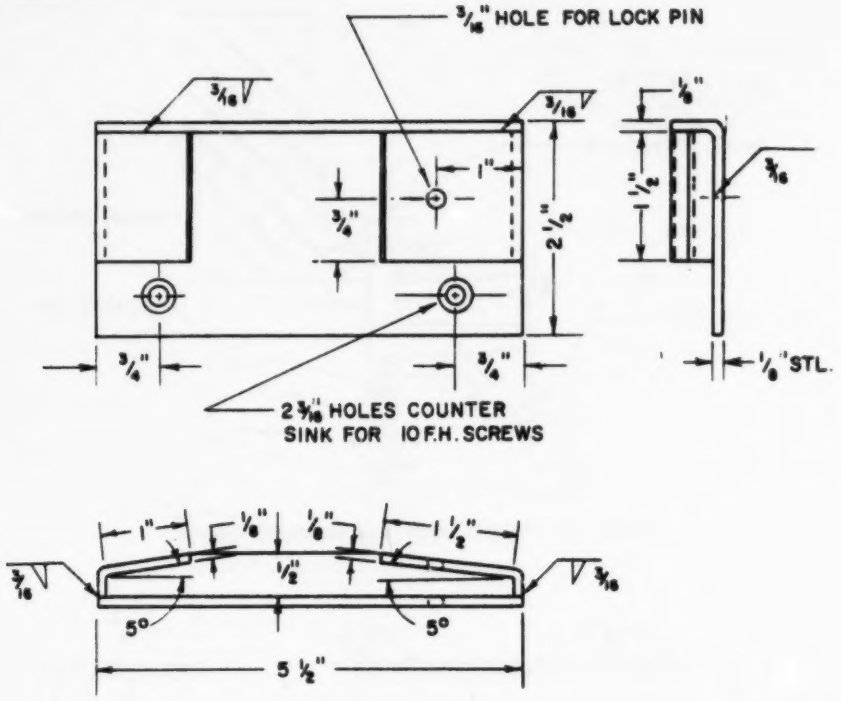

*Figure 48. Typical arbor press mounting method.*



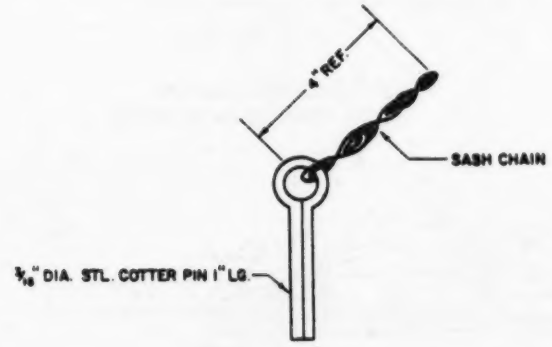

HYD. JACK MTG. REAR

*Figure 49. Arbor press pump mounting, rear.*




HYD. JACK MTG. FRONT

*Figure 50. Arbon press pump mounting, front.*




LOCK PIN
HYD. JACK

*Figure 51. Arbor press lockpin.*

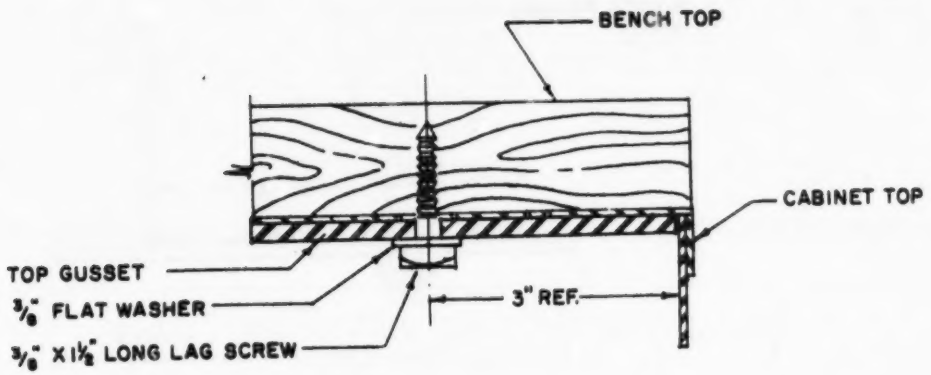



*Figure 52. Bench top mounting, typical installation.*

*j. Cabinets, Storage.* Storage cabinets are floor mounted and bolted together when adjacent. Typical mounting details are shown in figures 53 and 54.

*k. Chain Guard Railing.* Refer to figure 24 and TM 9–2330–238–14. The chain guard railing is installed on the outer edges of the folding shop doors when doors are in the down position. Installation of the chain guard railing is shown in figure 24.

*l. Ventilation.* The shop is provided with adequate ventilation facilities for normal operating conditions. Ducts, vents, and ventilating equipment should be checked periodically for cracks, dents, obstructions, and functioning of equipment. When the equipment is operated in extreme heat, ventilation equipment should be inspected as often as practical to insure proper operation of the equipment and operator comfort. Details of ventilation facilities are shown in TM 9–2330–238–14.

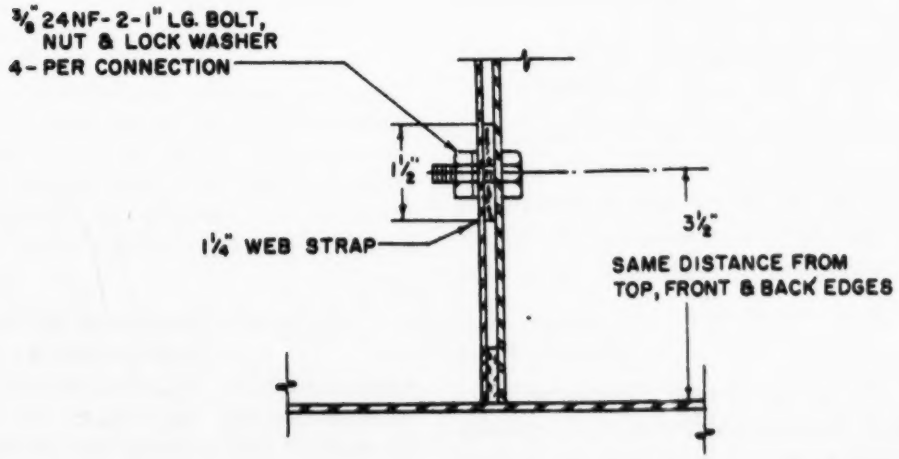



*Figure 53. Mounting adjacent cabinets.*

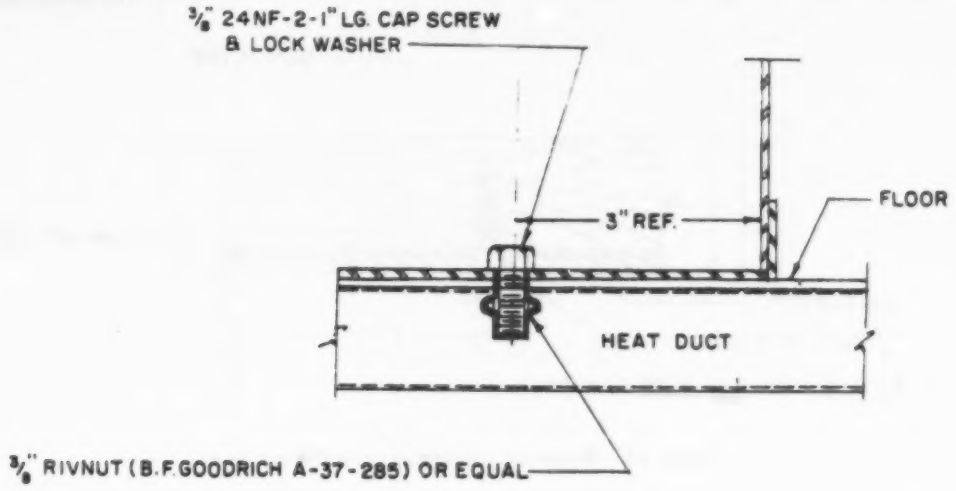



*Figure 54. Storage cabinet mounting, floor.*

## Section II. CONTROLS AND INSTRUMENTS

### 132. General

This section describes, locates, illustrates, and furnishes the operator with information pertaining to the various controls or instruments provided for the proper operation of the equipment.

### 133. Electrical Controls and Instruments

Refer to paragraph 9.

### 134. Pneumatic Controls and Instruments

Refer to paragraph 10.

# CHAPTER 9

# MAINTENANCE INSTRUCTIONS (FIELD AND DEPOT MAINTENANCE)

## Section I. SPECIAL FIELD AND DEPOT MAINTENANCE TOOLS AND EQUIPMENT

### 135. Special Tools and Equipment

Special tools or equipment are not required for field and depot maintenance of the shop set as a unit. Special tools and equipment required for field and depot maintenance of individual items of equipment are listed in the TM for the item (app. I).

### 136. Replacement or Repair Parts

Replacement or repair parts required for field and depot maintenance of the shop set are listed in paragraphs 129 through 131 and 139 through 142.

## Section II. LUBRICATION

### 137. General

Lubrication instructions for the shop set are contained in the LO which is a part of the TM for the item of equipment in paragraphs 29, 87, and 89 of this manual.

### 138. Special Lubrication Instructions

Refer to paragraphs 18 through 26 and 78 through 85 for special lubrication requirements under unusual conditions.

## Section III. PREVENTIVE MAINTENANCE SERVICE

### 139. General

Preventive maintenance services to be performed by field and depot maintenance personnel consists of lubrication, preservation, painting, anodizing, alodizing, and application of rust preventive compounds prior to shipment of an assembled shop set to the using organization.

### 140. Preventive Maintenance Service at Time of Major Repair

When a shop set is returned to field or depot maintenance for major repair, preventive maintenance services performed at time of shipment to the using organization should be repeated as necessary to insure the efficient operation of shop in the field.

### 141. Cabinets, Storage, Type I and Type III

*a. Repair.* Fabrication and assembly of components which may be required for repair and replacement are shown in figures 55 through 68. These components will be fabricated in accordance with these figures when required.

*b. Disassembly.* Disassemble in reverse order of assembly.

*c. Inspection.* Inspect cabinet for sticking drawers, bent or distorted panels, sharp edges, security of assembled details, condition, and wear. Repair or replace components as necessary.

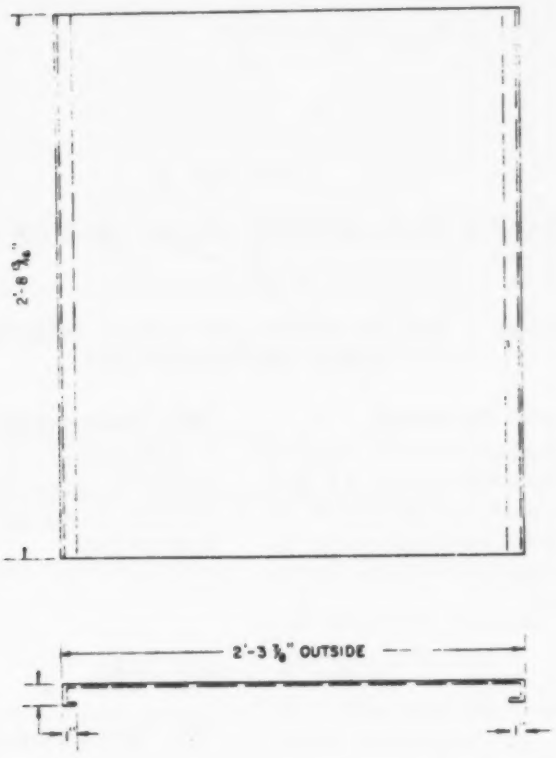



*Figure 55. Typical cabinet side, type I.*

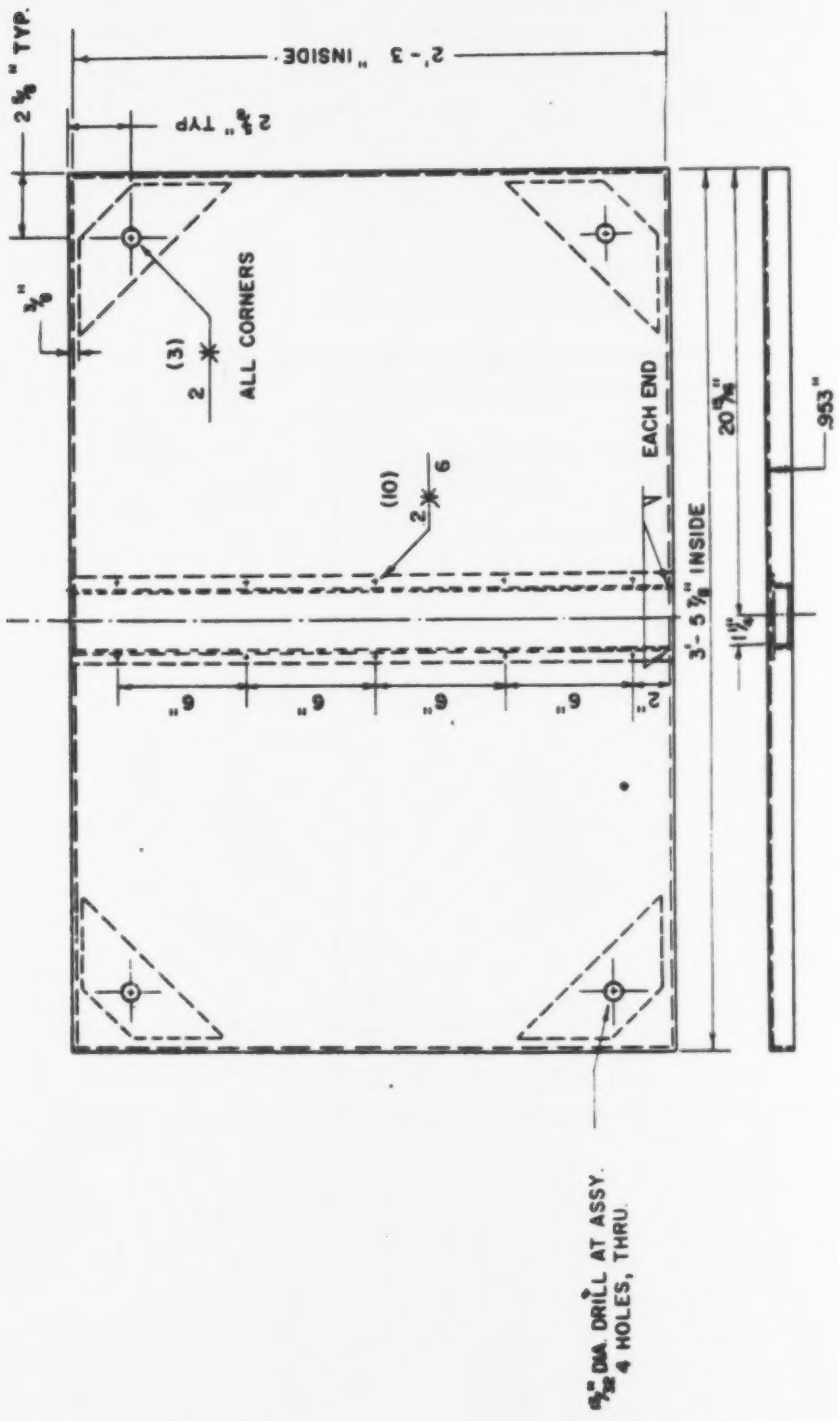



*Figure 66. Typical cabinet top, type I.*

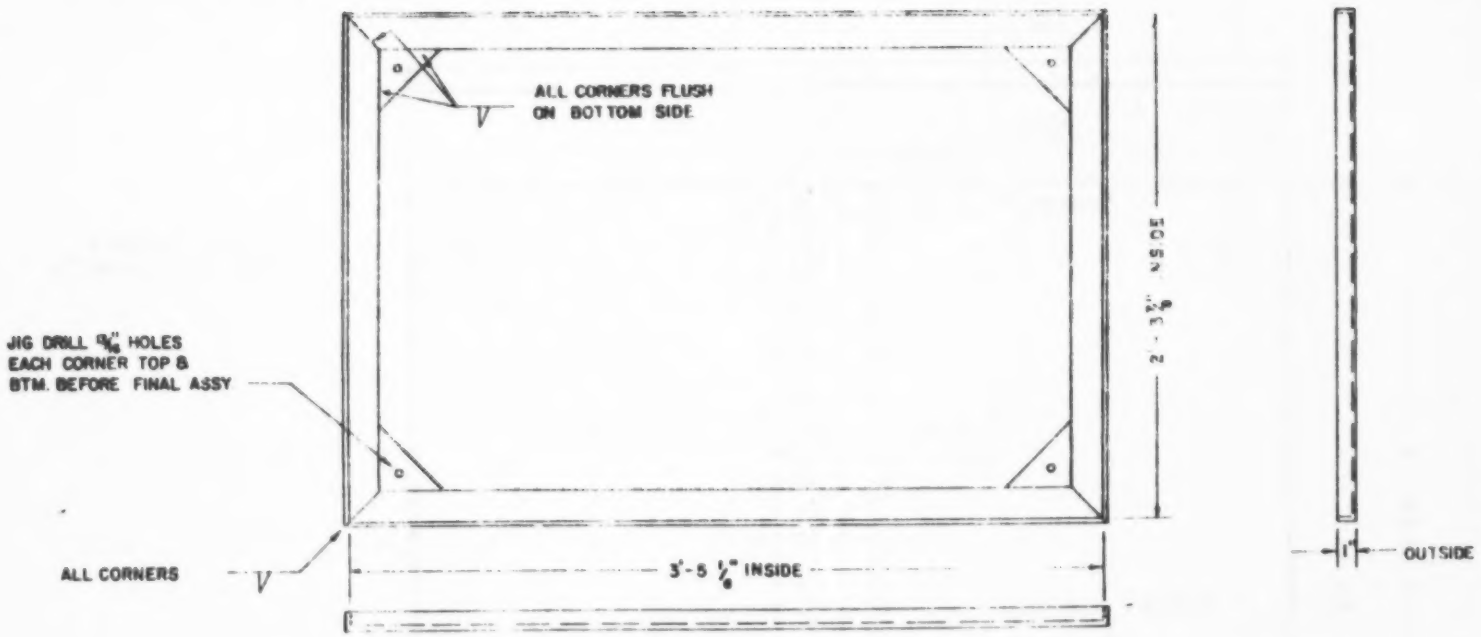



*Figure 57. Typical cabinet bottom, type I.*

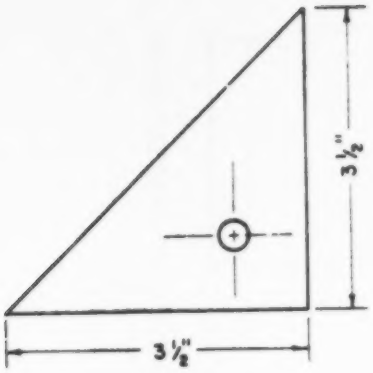
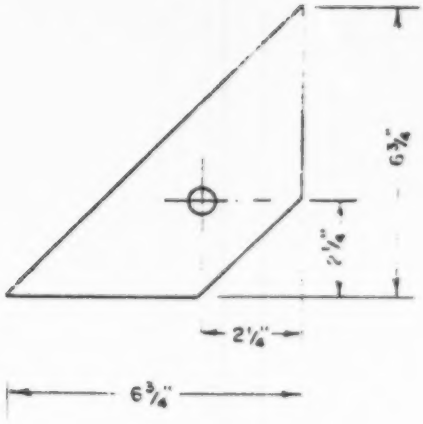



*Figure 58. Typical cabinet bottom corner gusset, type I.*

*Figure 59. Typical locking bar storage bracket, type I.*

CENTER SPT.
STL. (.059) THK.

*Figure 60. Typical cabinet center support, type I.*




GUSSET TOP
STL ( 104 ) THK.

*Figure 61. Typical cabinet top gusset, type 1.*

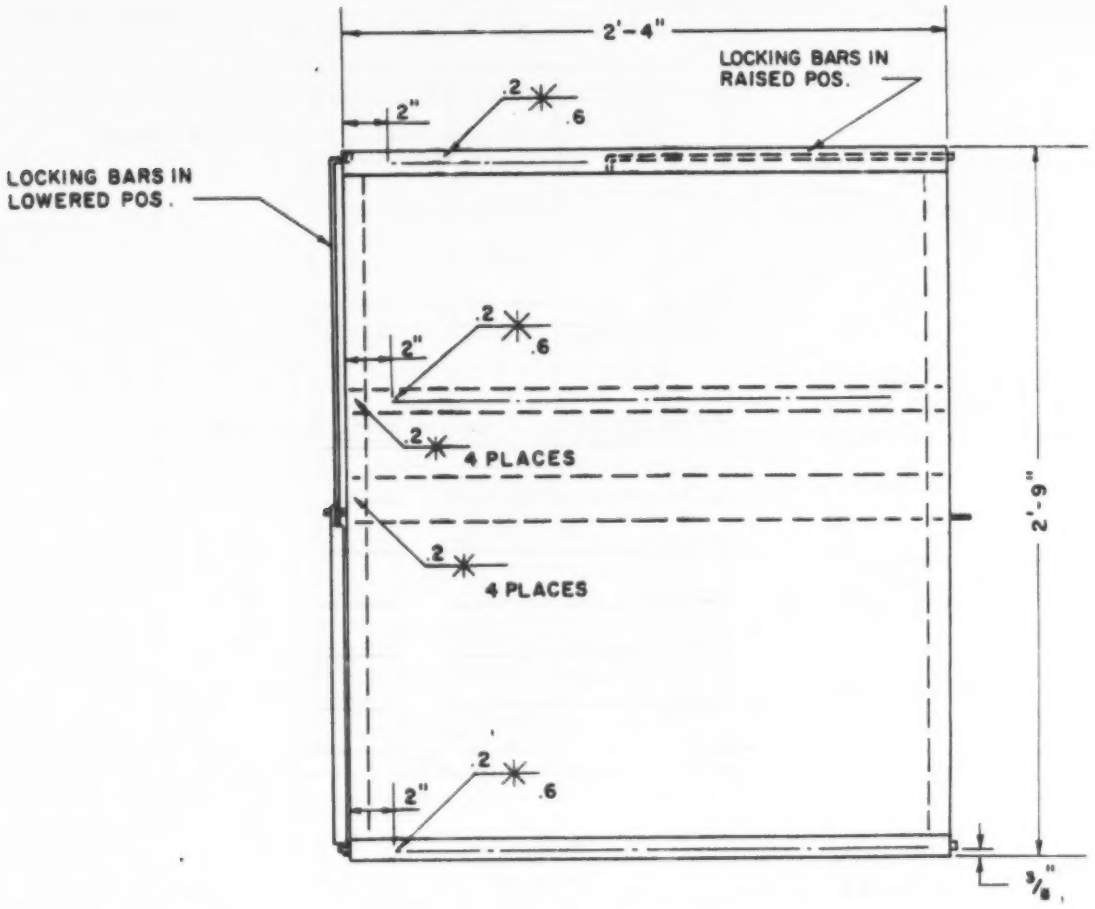



*Figure 62. Typical cabinet side, type III.*

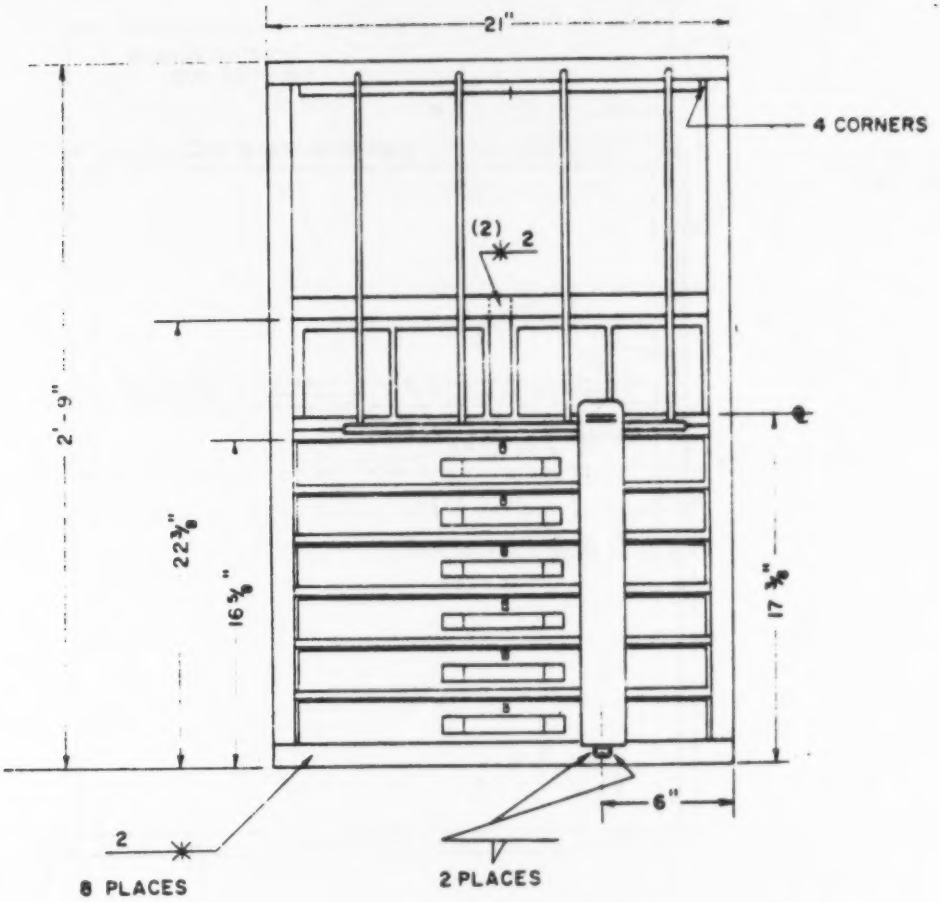



*Figure 63. Front view, cabinet, type III.*

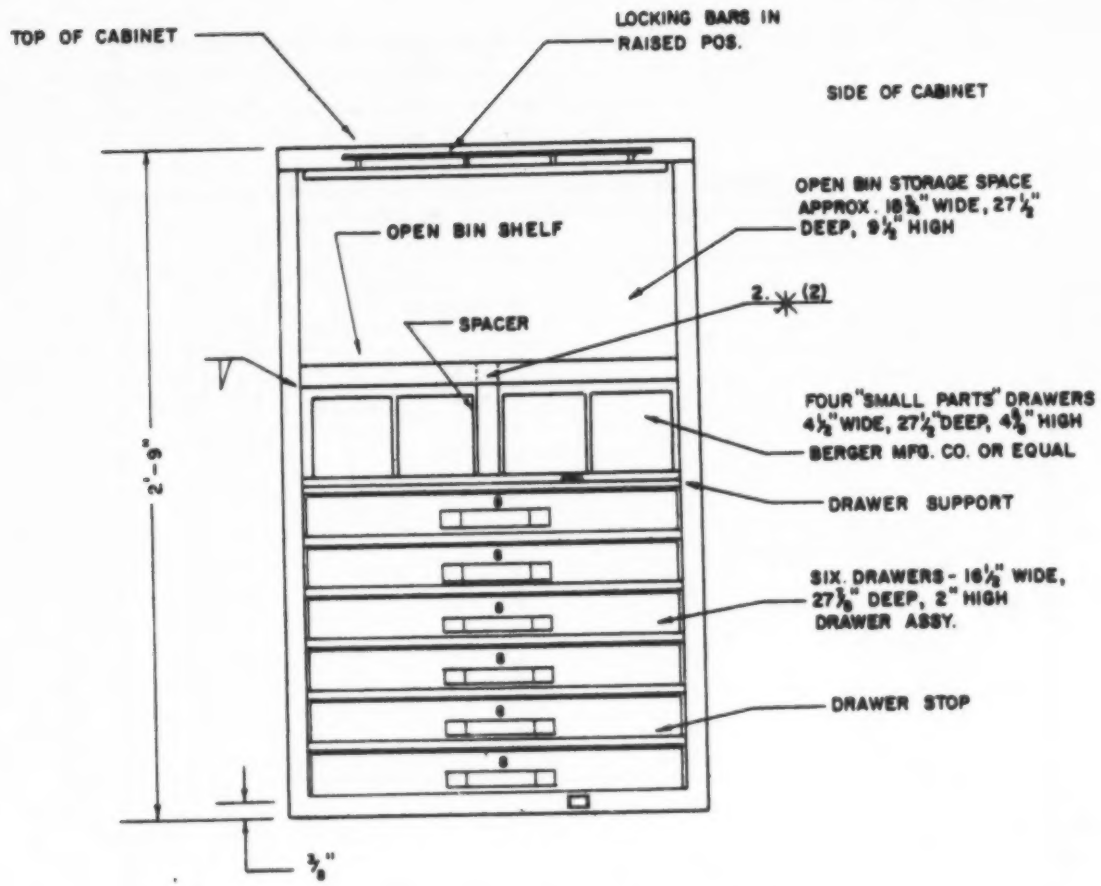

TOP OF CABINET
LOCKING BARS IN RAISED POS.
SIDE OF CABINET
OPEN BIN STORAGE SPACE APPROX. 18⅜" WIDE, 27½" DEEP, 9½" HIGH
OPEN BIN SHELF
2. (2)
SPACER
FOUR "SMALL PARTS" DRAWERS 4½" WIDE, 27½" DEEP, 4⅜" HIGH
BERGER MFG. CO. OR EQUAL
DRAWER SUPPORT
SIX DRAWERS - 16½" WIDE, 27⅜" DEEP, 2" HIGH DRAWER ASSY.
DRAWER STOP
2'-9"
⅜"

*Figure 64. Rear view, cabinet, type III.*

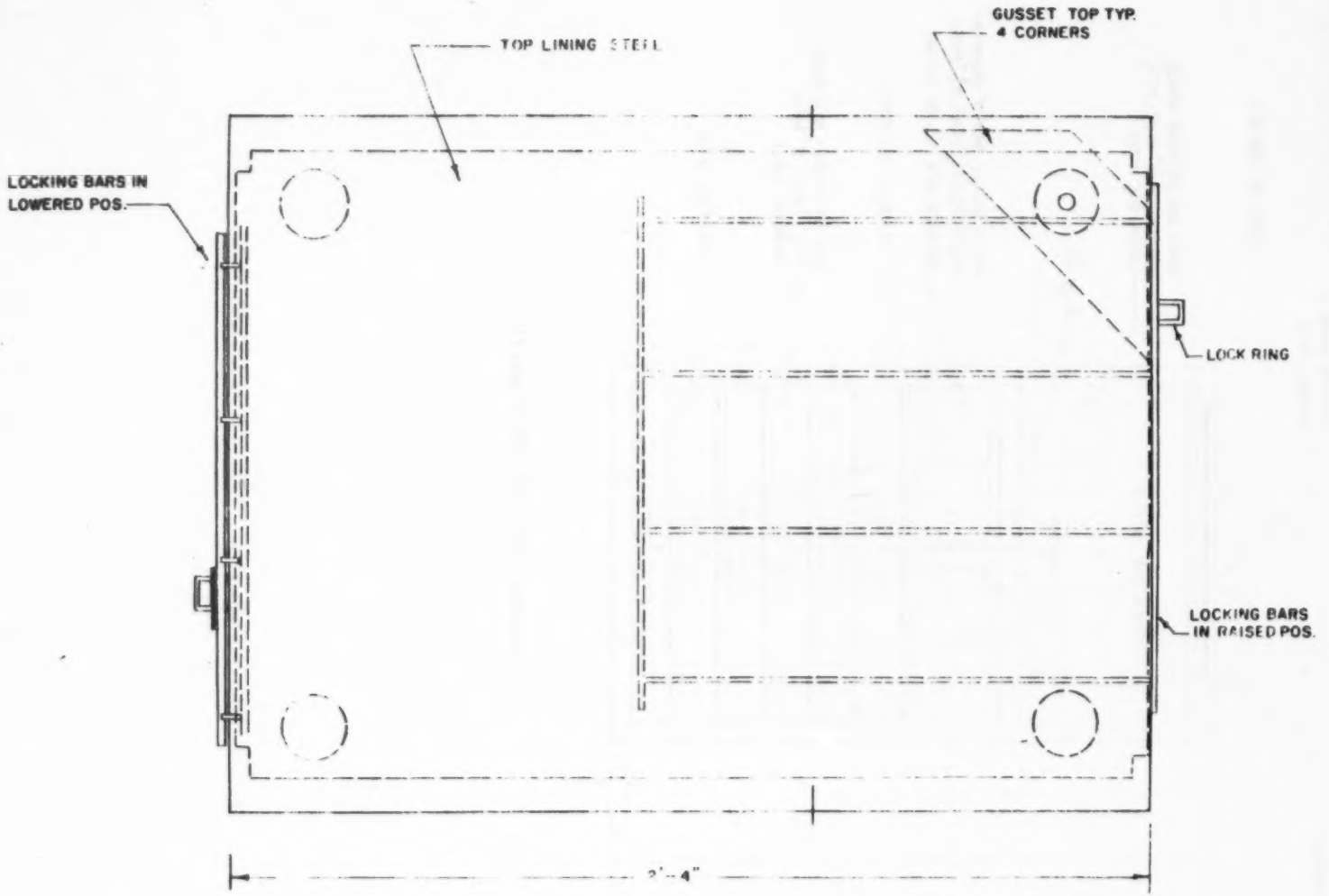



*Figure 65. Top view, cabinet, type III.*

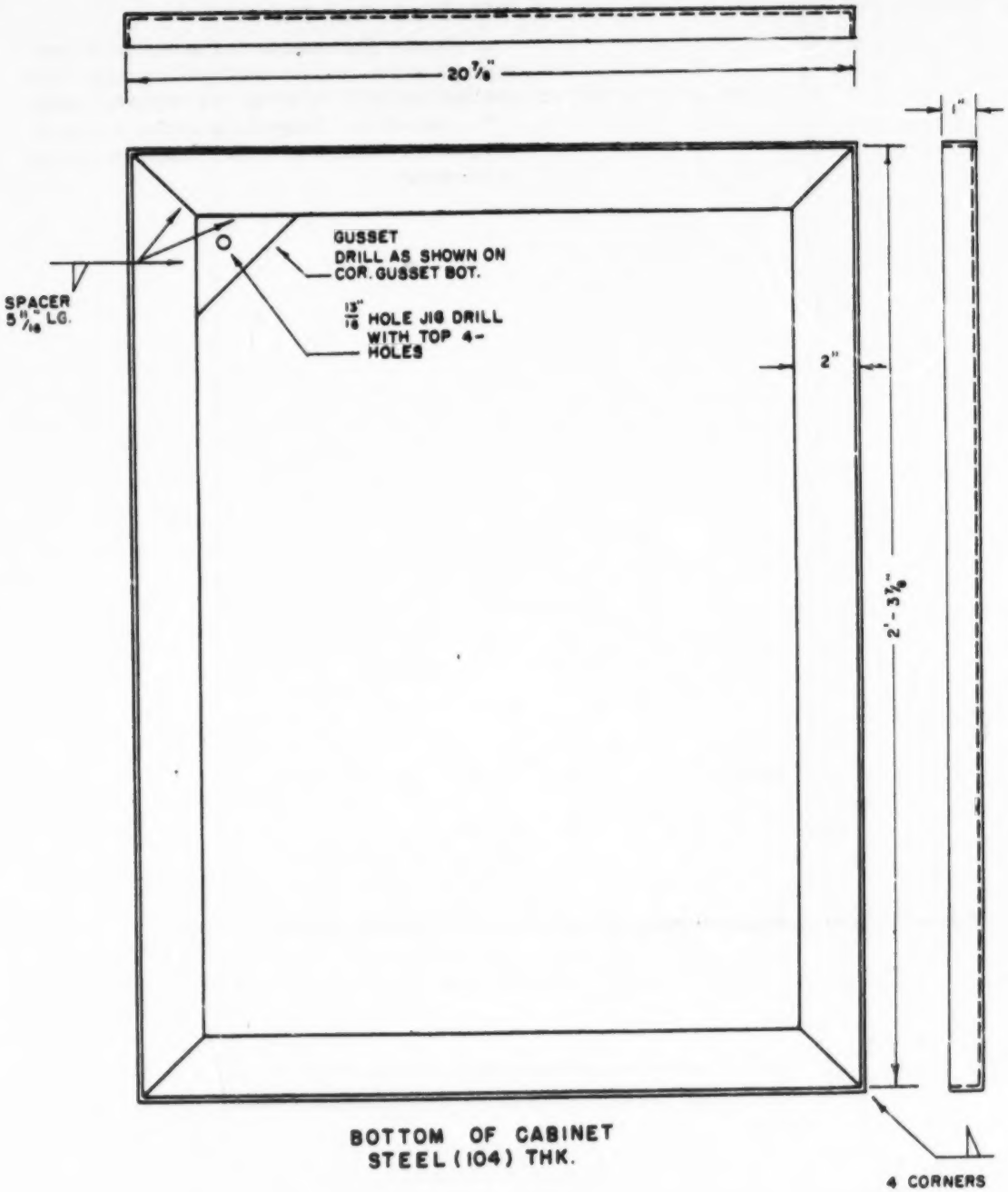



*Figure 66. Typical cabinet bottom, type III.*

*Figure 81. Type III shelf, front view.*

## 142. Bench Top, Size A

*a. Repair.* Fabrication and assembly of components which may be required for repair and replacement will be on an "as required" basis.

*b. Inspection.* Inspect for nicks, scratches, gouges, condition, and wear. Repair or replace as necessary.

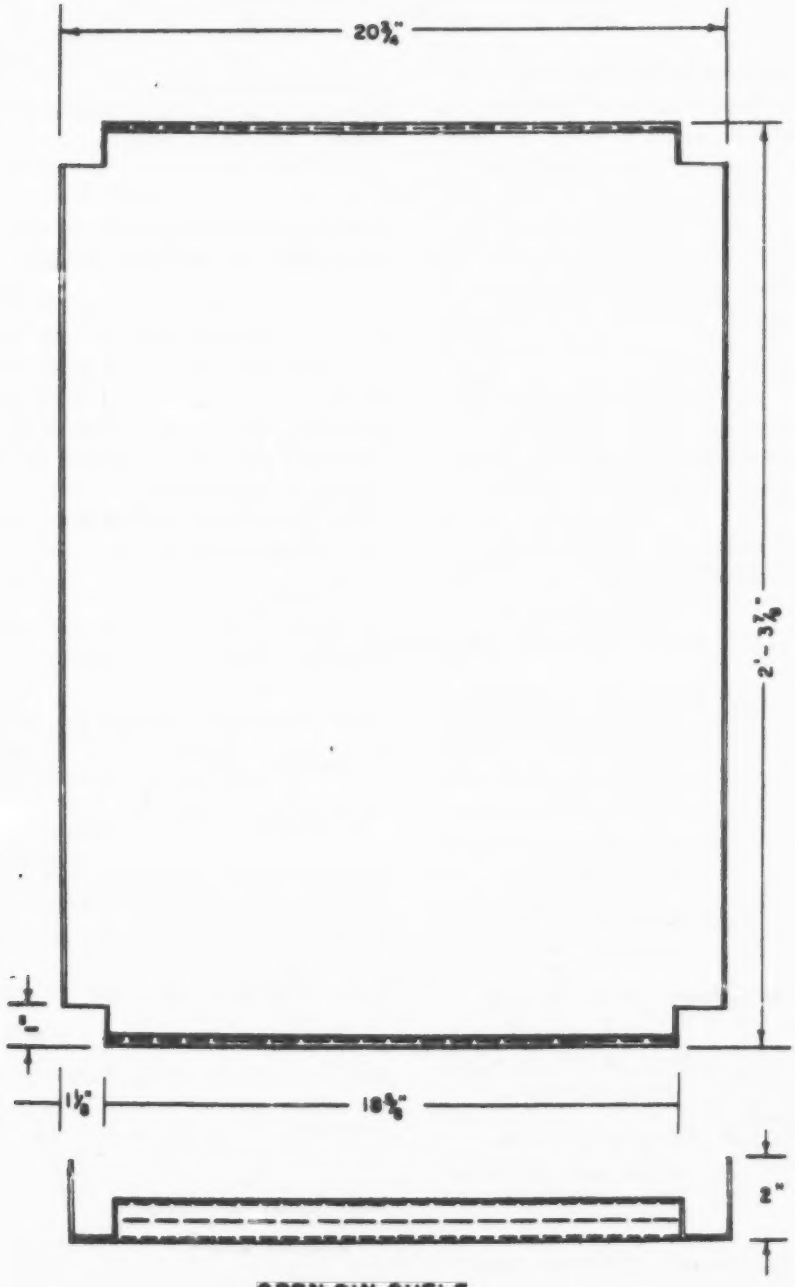



*Figure 68. Type III shelf, top and side view.*

## Section IV. TROUBLESHOOTING

### 143. General

This section contains troubleshooting information useful to field and depot maintenance personnel in diagnosing and correcting unsatisfactory operation or failure of the shop set or any of its components.

### 144. Procedure

Troubleshooting is a systematic isolation of defective components by means of an analysis of the shop set trouble symptoms, testing to determine the defective component, and applying the remedy. To correct malfunctioning of equipment, the probable cause should be systematically isolated in accordance with instructions in the following paragraphs.

### 145. Electrical Equipment Operates at Slow or Reduced Speed

| *Probable cause* | *Possible remedy* |
|---|---|
| Internal break in conductor inside conduit. | Remove wire from conduit; |
| Improper grounding | Inspect for corrosion at ground connections – repair or replace as necessary. |
| Contact points of circuit breaker dirty or corroded | Clean points, reinstall circuit breaker. |
| Improper connections in control panel | Check control panel; position leads (fig. 8). |

### 146. Electrical Equipment Stops During Operation

| | |
|---|---|
| Broken power cord | Remove power cord; inspect, repair, or replace. |
| Circuit breaker burned out | Replace circuit breaker. |
| Short circuit in system | Check system with voltohm meter; repair short circuit. |

### 147. Electrical Equipment Will Not Start

| *Probable cause* | *Possible remedy* |
|---|---|
| External power receptacle inoperative | Replace receptacle. |
| Power cord broken | Repair or replace power cord. |
| Circuit breakers burned out | Replace circuit breakers. |
| Safety disconnect switch contacts corroded | Clean contacts. |

### 148. Pneumatic Equipment Operates at Slow or Reduced Speed

| *Probable cause* | *Possible remedy* |
|---|---|
| Partial stoppage in air line or hose | Remove obstruction from air line or hose. |
| Damaged air line | Replace air line. |
| Controls stuck | Repair or replace controls. |

### 149. Pneumatic Equipment Stops During Operation

| *Probable cause* | *Possible remedy* |
|---|---|
| Obstruction in air lines | Remove obstruction. |
| Broken air lines | Replace line. |

### 150. Pneumatic Equipment Will Not Start

| *Probable cause* | *Possible remedy* |
|---|---|
| Power source not functioning correctly | Refer to power source TM for procedure. |
| Check valves inoperative | Repair or replace check valves. |
| Controls stuck | Repair or replace controls. |

### 151. Excessive Vibration of Equipment

| *Probable cause* | *Possible remedy* |
|---|---|
| Broken mountings | Replace mountings. |
| Equipment improperly mounted | Remount equipment correctly. |

### 152. Excessive Noise

| *Probable cause* | *Possible remedy* |
|---|---|
| Mountings not secure | Re-position and secure mounts. |
| Equipment assemblied improperly | Reassemble correctly. |

## Section V. ELECTRICAL SYSTEM

### 153. General

Refer to paragraphs 104 through 108 for detailed description of the electrical system.

### 154. Electrical Generator

Field and depot maintenance responsibilities for the generator are listed in the TM for the generator (app. I).

### 155. Electrical Wiring Installation

Field and depot maintenance personnel are responsible for performing tests and correcting discrepancies in the electrical wiring system as authorized by appendix II. Refer to paragraphs 143 through 152 for troubleshooting procedures. Detailed description of electrical wiring system is listed in paragraphs 104 through 108.

### 156. Electrical Switches and Circuit Breakers

Refer to paragraphs 104 through 108 for description of circuit breakers and switches. Field and depot maintenance personnel maintenance responsibilities consist of testing or replacing switches and circuit breakers in accordance with appendix II. Refer to paragraphs 143 through 152 for troubleshooting procedures.

### 157. Lighting System

Refer to chapter 6, section VI, for description of lighting system. Field and depot maintenance responsibilities consist of testing or replacing defective components of lighting system in accordance with appendix II.

## Section VI. PNEUMATIC SYSTEM

### 158. General

A description of the pneumatic system is contained in paragraphs 109 through 111.

### 159. Lines and Hose

Field and depot maintenance of air lines and hose consists of mounting, testing, repair, and replacement. Refer to paragraphs 143 through 152 for troubleshooting procedures.

### 160. Controls and Instruments

Field and depot maintenance of controls and instruments consist of mounting in accordance with chapter 8, and testing in accordance with the applicable TM (app. I).

## Sectin VII. UTILITY SYSTEM

### 161. General

Field and depot maintenance responsibilities for the utility system are listed in chapter 9, section III.

### 162. Repair Parts

Repair or replacement parts for the utility system are listed in chapter 9, section III.

# APPENDIX I
# REFERENCES

## 1. Publication Indexes

Department of the Army Pamphlets of the 310–series should be consulted frequently for the latest changes or revision of references given in this appendix and new publications relating to the material covered in this manual.

## 2. Technical Manuals

| | |
|---|---|
| TM 5–5260 | Generator Set, electric portable, gasoline driven, skid mounted, 10 kw, 60 cycles, 120–208 volts, 3 phase, 4 wire, 120 volt, single phase, 2 wires, 120–240 volt, single phase, 3 wire, Hollingsworth Model CE–100 AC/WK 4 (less engine). |
| TM 5–6115–204–10 | Operator's manual, generator set, gasoline driven 10 kw, ac, 120 v, 1 and 3 phase, 120/240 v, single phase, 120/208 v, 3 phase, 60 cycle, skid mounted (John Renier model GGC–10–AC–2) w/Continental engine model FS 162, spec. 6026, serial numbers 11115 through 12710, FSN 6115–504–0846; (John Renier model GGC–10–AC–3) w/Continental engine model FS 162, spec. 6037, serial numbers 16590 through 17092, FSN 6115–620–1257. |
| TM 5–6115–204–20 | Organizational maintenance: Generator set, gasoline engine, 10 kw, ac, 120 v, 1 and 3 phase, 120/240 v, single phase, 120/208 v, 3 phase 60 cycle; skid mounted (John Renier model GGC–10–AC–2) w/Continental engine model FS 162, spec. 6026, serial numbers 1115 through 12710, FSN 6115–504–0846; (John Reiner model GGC–10–AC–3) w/Continental engine model FS 162, spec. 6037, serial numbers 16590 through 17092, FSN 6115–620–1257. |
| TM 5–6115–204–35 | Field and depot maintenance manual: Generator set, gasoline engine: 10 kw, ac, 120 v, 1 and 3 phase 120/240 v, single phase, 120/208 v, 3 phase, 60 cycle; skid mounted (John Reiner model GGC–10–AC–2) w/Continental engine model FS 162, spec. 6026 serial numbers 11115 through 12710) FSN 6115–504–0846; (John Reiner model GGC–10–AC–3) w/Continental engine model FS 162, spec 6037, serial numbers 16590 through 17092) FSN 6115–620–1257. |
| TM 5–6115–204–35P | Field and depot maintenance repair parts and special tool lists: Generator set, gasoline engine: 10 kw, ac, 120 v, 1 and 3 phase, 120/240 v, single phase, 120/208 v, 3 phase, 60 cycle, skid mounted (John Reiner model CGC–10–AC–2) w/ontinental engine model FS 162, spec 6026 serial numbers 11115 through 12710 (FSN 6115–504–0846) (John Reiner model GGC–10–AC–3) w/Continental engine model FS 162, spec. 6037 serial numbers 16590 through 17091 (FSC 6115–620–1257). |
| TM 5–6115–232–10 | Operator's Manual. Generator set, gasoline engine: 10 kw, ac, 120 v, 1 and 3 phase, 120/240 v, single phase, 120/208 v, 3 phase, 60 cycles; skid mounted (Hol-Gar model CE–105–AC/WK8) w/Hercules engine model IXB3ER (FSN 6115–631–6811). |

| | |
|---|---|
| TM 5–2330–238–14 | Operation and organizational maintenance for Semitrailer, Van; Shop, 6-ton, 4-wheel, Folding sides, M447. |

### 3. Technical Bulletin

Preventive Maintenance Services: Generator Set, electric, portable, gasoline driven, skid mounted 10 kw, 120–208 volt, 60 cycles, 4 wire, Reiner Model GGC–10–AC (less engine).

### 4. Lubrication Orders

| | |
|---|---|
| LO 5–5260 | Generator Set, electric, portable, gasoline driven, skid mounted, 10 kw, 60 cycles, 120–208 volt, 3 phase, 4 wire; 120 volt 1 phase, 2 wire; 120 volt, 3 phase, 3 wire; Hollingsworth Model CE–100–AC/WK–4. |
| LO 5–6115–204–20 | Generator set, gasoline driven: 10 kw, ac, 120 v, 1 and 3 phase, 120/240 v, single phase, 120/208 v, 3 phase, 60 cycle, skid mounted (Reiner models GGC–10–AC–2 and GGC–10–AC–3) w/Continental engine model FS162. |

### 5. Army Regulations and Special Regulations

| | |
|---|---|
| AR 700–38 | Unsatisfactory equipment report. |
| AR 700–58 | Report of damaged or improper shipment. |
| AR 750–6 | Maintenance planning, allocation and coordination. |
| AR 385–Series | Army Safety Policy. |

### 6. Supply Manuals

| | |
|---|---|
| SM 55–4–4920–S40 | Shop Set, Aircraft Maintenance, Semitrailer Mounted, C–6, Machine Shop. |

### 7. Indexes and Forms

| | |
|---|---|
| DA Pam 310–1 | Index or Administrative Publications. |
| DA Pam 310–2 | Index of Blank Forms. |
| DA Pam 310–4 | Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders and Modification Work Orders. |
| DA Pam 310–22 | Index of Supply Manuals Transportation Corps. |
| DA Form 460 | Preventive Maintenance Roster. |
| DA Form 468 | Unsatisfactory Equipment Report. |
| DD Form 6 | Report of Damaged or Improper Shipment. |
| DD Form 314 | Preventive Maintenance Schedule and Record. |

# APPENDIX II

# MAINTENANCE ALLOCATION

## 1. Purpose

The maintenance allocation chart provides all activities with a description of maintenance functions to be performed at each echelon of maintenance.

## 2. Definitions of Terms

*a. Service.* To clean, preserve, and replenish fuel and lubricants.

*b. Adjust.* To regulate periodically to prevent malfunction.

*c. Inspect.* To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.

*d. Test.* To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

*e. Replace.* To substitute serviceable assemblies, subassemblies, and parts for unserviceable components.

*f. Repair.* To restore to a serviceable condition by replacing unserviceable parts or by any other action required, utilizing tools, equipment, and skills available, to include welding, grinding, riveting, straightening, adjusting, etc.

*g. Rebuild.* To restore to a condition comparable to new by disassembling the item to determine the condition of each of its component parts and reassembling it using serviceable, rebuilt, or new assemblies, subassemblies, and parts.

*h. Minor Disassembly.* That disassembly where only subassemblies are removed, not entire system, and replacement does not require alinement.

*Maintenance Allocation Chart*

| Components and Related Operations | 1st echl. | 2d echl. | 3d echl. | 4th echl. | 5th echl. | Spec. tools req'd | Remarks |
|---|---|---|---|---|---|---|---|
| **ELECTRICAL:** | | | | | | | |
| **CIRCUIT BREAKERS:** | | | | | | | |
| Service | X | | | | | | |
| Adjust | X | | | | | | |
| Inspect | X | | | | | | |
| Test | -- | X | | | | | |
| Replace | -- | -- | X* | | | | |
| Repair | | | | X | | | |
| Rebuild | | | | | X | | |
| **WIRING:** | | | | | | | |
| Service | X | | | | | | |
| Test | | X | | | | | |
| Inspect | X | | | | | | |
| Replace | | | X* | | | | |
| Repair | | | X | | | | |
| Rebuild | | | | | X | | |
| **PNEUMATIC:** | | | | | | | |
| **AIR SUPPLY SYSTEM:** | | | | | | | |
| Service | X | | | | | | |
| Adjust | X | | | | | | |
| Inspect | X | | | | | | |
| Test | | X | | | | | |
| Replace | -- | -- | X* | | | | |
| Repair | | | | X | | | |
| Rebuild | | | | | X | | |
| **UTILITY:** | | | | | | | |
| **CABINETS:** | | | | | | | |
| Service | X | | | | | | |
| Adjust | X | | | | | | |
| Inspect | X | | | | | | |
| Replace | | X | | | | | |
| Repair | | | X* | | | | |
| Rebuild | | | | | X | | |

*Only those items requiring minor disassembly.

BY ORDER OF THE SECRETARY OF THE ARMY

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*General, United States Army.*
*Chief of Staff.*

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